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To which is added,

INSTRUCTIONS for making ENGLISH WINES;

With a Number of

ORIGINAL RECEIPTS.

By FRANCIS MILLAR.

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[Price Two Shillings.]

PART I.

OF THE

Several Kinds of GRASSES,

With their MANAGEMENT.

General rules for ordering the ground for graſſes.

THE beſt ſeaſon for ſowing graſs ſeed is the latter end of Auguſt, and the beginning of September, that the graſs may be well rooted before the froſt ſet in, which is apt to turn the plants out of the ground, when they are not well rooted. This ſeed ſhould be ſown in moiſt weather, or when there is a proſpect of ſhowers; towards the middle of

March will be a good time, if the ſeaſon is favourable.

The land on which graſs ſeed is intended to be ſown, ſhould be well ploughed, and cleared from the roots of noxious weeds, ſuch as couch-graſs, fern, rumes, heat, gorſe, broom, reſt-harrow, which, if left in the ground, will ſoon get the better of the graſs, and overrun the land. Therefore, in ſuch places where either of theſe weeds abound, it will be a good method to plough up the ſurface in April, and let it lie ſome time to dry; then lay it in ſmall heaps and burn it. The aſhes ſo produced, when laid on the land, will be a good manure for it. The method of burning the land is particularly uſeful; eſpecially, if it is a cold ſtiff ſoil: but where couch graſs, fern, or reſt harrow is in plenty, whoſe roots run far under ground, the land muſt be ploughed two or three times pretty deep in dry weather, and the roots carefully harrowed off each ploughing; which is the moſt ſure way to deſtroy them. Where the land is very low, and of a ſtiff clayey nature, which holds water in winter, it will be of ſingular ſervice to make ſome under ground drains to carry off the wet; which if detained too long on the ground will render the graſs ſour.

Before the ſeed is ſown, the ſurface of the ground ſhould be made level and fine, otherwiſe the ſeed will be buried unequal.

The

The quantity of graſs-ſeed for an acre of land is uſually three buſhels, if the ſeed is clean, otherwiſe there muſt be a greater quantity allowed; when the ſeed is ſown, it muſt be gently harrowed in, and the ground rolled with a wooden roller: which will make the ſurface even, and prevent the ſeeds being blown in patches. When the graſs comes up, if there ſhould be any bare ſpots, where the ſeed has not grown, they may be ſown again, and the ground rolled, which will fix the ſeeds; and the firſt kindly ſhowers will bring up the graſs, and make it very thick.

Where land is deſigned to be laid down for many years, it will be proper to ſow with the graſs ſeed ſome white trefoil, or Dutch clover; which is an abiding plant; ſpreads cloſe on the ſurface of the ground, ſending forth roots at every joint; and makes the cloſeſt ſward of any, and is the ſweeteſt feed for cattle: ſo that, whenever land is laid down to paſture, there ſhould always be ſix or eight pounds of this ſeed upon each acre.

The following ſpring, if there ſhould be any thiſtles, ragwort, or ſuch other troubleſome weeds, come up among the graſs, they ſhould carefully be cut up in a ſpaddle before they grow large; and this ſhould be repeated two or times in the ſummer, which will effectually deſtroy them; for if theſe plants are ſuffered to ripen their ſeeds, they will be

blown all over the ground; their ſeeds having down adhering to them, which aſſiſts their tranſportation; ſo that they are often carried by the wind to a great diſtance, and thereby become very troubleſome weeds to the graſs.

Of ſeveral kinds of Graſſes, with their management.

Of Nonſuch. Nonſuch trefoil is biennial, or lives but two years; it goes by the ſeveral names of nonſuch, black ſeed, and hopclover. The ſeeds are yellow, and covered with black husks: it will grow upon the pooreſt land that is; and though worn out by frequent tillage, yet it will produce good and profitable crops of graſs. It makes early paſture, which is very good for cattle, eſpecially for cows, cauſing great increaſe of milk; and the hay is very nouriſhing and fattening, provided it be mowed and made whilſt it is full of yellow bloſſoms, and not oevr dried, being ſoon moved; and then it will not loſe its colour, nor ſhrink in making, as the clover graſs does, being much finer and greener. It is alſo exceeding good for ewes and lambs, being a ſound feeding, and free from rottenneſs. Nor is it ſubject to ſurfeit the cattle, as the clover; and therefore it is very good, for preventing this miſchief, to mix in the ſowing one moiety of this ſeed with one of clo-

ver,

ver, which thrive very well together, and afford good hay and good pasture for all sorts of cattle. It is sown in spring upon corn, and must be harrowed in with bushes, or bush-harrows; and at the same time a wooden roller should be drawn over the ground to press in the seed, and to make the surface smooth. Twelve or fourteen pounds of clean seed is sufficient for an acre; but in the hulls, a bushel and a half or two bushels should be allowed. When it is designed for seed, it must not be mowed for hay, nor pastured in spring, as is the method with broad clover.

Of Saint-Foin, (Onobrichis). This grass is also called cockshead, or French grass; it will grow upon barren, dry strong grounds, hardly fit for corn or grass; but of all clays and other cold and wet soils, though deep and rich, will not bear it. There is such vast improvement made with this seed, that grounds not worth two shillings an acre, may be made thirty or forty shillings. It is a large and light seed, and therefore you must allow six bushels to an acre, though some allow but three or four. It is a very sweet and nourishing herb, but above all, it is observed to increase milk in quantity and quality beyond any grass yet known in the whole world: wherefore it is adviseable to keep cows upon it for a dairy. If rightly ordered at first, it will last fifteen or twenty, some say thirty

years, without any emendations of dung, where the land agrees with lr: but it is beſt to be ſometimes mowed and ſometimes fed. The true ſaint foinis imported in great quantities from Dunkirk or Calais; and is ſold at the ſeed ſhops in London and elſewhere. There is a baſtard ſort in Berkſhire, Wiltſhire, and many other counties; but it is much inferior to the true ſaint-foin. The ſeaſons for ſowing it, are from the beginning of Auguſt to the end of September; and in ſpring, from the beginning of February till the end of March; and the earlier it is ſown in either ſeaſon the better. In autumn the tillage muſt be as if for wheat, finely plowed, and alſo harrowed; and then ſow it and harrow it again to cover the ſeed. In autumn it muſt be ſowed alone without grain; but in ſpring with oats or barley, and two buſhels of either is enough to an acre. In ſpring, the husbandry muſt be the ſame in all reſpects as for ſummer corn. New broken ground cannot be ſown with it; but if the ground be preſently turned up after the crop is off, and well harrowed, it may be fit to ſow the ſpring following. The ground ſowed with this ſeed muſt be well fenced in, and ſecured from cattle the firſt year: the ſecond it may be mown, and fed much about Allhalontide; but if the weather proves wet, the cattle ſhould be turned out, for fear of ſpoiling the

roots

roots before they are thorough ſtrong, which will not be till the third year; but always after, as long as it laſts, it may be either mowed, or fed at pleaſure. When it is deſigned to be mowed, it muſt be laid in about Lady-day, and it will be fit to mow about the middle of May, if in full bloom. It is made in all reſpects as other hay, and is very good for all cattle, except ſheep, as being too groſs for them, breeding ſtore of milk; but in the winter ſeaſon it is good for ſheep.

Great Clover. That is beſt that is brought from Flanders, and bears the great red or purple honeyſuckle, its ſeeds being much the ſize of muſtard-ſeed, but more oblong; and that the greeniſh yellow colour is moſt liked. Mortimer ſays the Engliſh ſeed is beſt; and ſuch as is of a greeniſh colour with a caſt of red, that which is black never growing ſo well. Take care that it be good new ſeed, otherwiſe your crop will be but indifferent, there being great deceit uſed in it by many ſeedſmen. You may know whether the ſeed be good, by trying it in a glaſs of water, where all that ſwims is to be rejected. There is a certain fly which is ſometimes known to eat this ſeed in the ground, but that inconvenience is eaſily prevented, by ſteeping it for the ſpace of a night in foot, and as much urine as will make it a liquid. I adviſe never to ſow leſs than twenty pounds of ſeed upon an

an acre. Many, no doubt, will object againſt this as a double charge, becauſe it is common to ſow no more than ten or twelve; but a man that is not quite ignorant, will eaſily imagine, that the thicker this little ſeed is ſown, the thicker it will ſpring, and the better keep down all weeds and common graſs, and conſequently become of double advantage.

I adviſe to ſow it in Auguſt or September, and alone, inſtead of ſowing it in the ſpring, and with corn, which has many conveniencies; it will riſe thick, and ſwarth the ground, before the hard weather comes in, and thereby not only gather ſtrength to defend itſelf againſt the winter froſts, but will be ſo early in the ſpring, that you might mow it the firſt time in the very begining of May or perhaps ſooner: it is fit to cut when it begins to knot.

When the firſt hard froſt have bound the earth ſo faſt that you may bring horſes upon it without damage to the roots of the clover, this is the very point of time in which you ſhould beſtow about eight or ten load of ſea-owſe, ſea-ſand, ſheeps dung, &c. upon every acre, if heavy land; if light land, chalk, marle, clay, &c. taking care to ſpread it as equally as may be, that when the froſt diſſolves, the rain may drive the ſtrength of the manure into the earth, which in the tender

infancy

infancy of her new turf will eaſily admit it, to the nouriſhment of the roots and ſurpriſing increaſe of the clover, both as to quantity and ſweetneſs.

Three years your clover thus managed will thrive amazingly, and produce an unexpected profit; but let not that tempt you to continue it longer. At the end of the third ſummer break it up, and after two ploughings ſow it in ſpring with barley; take two crops of wheat ſucceſſively, and then without manuring, lay it down with clover. Always obſerve an alternate huſbandry; three years ploughing, and three years clover. You cannot gueſs the advantage which will accrue, by a ſtrict adherence to this one rule. Your land ſo managed will for ever retain its full vigour, yearly afford the largeſt crops, and never fall under a poſſibility of being worked out of heart: a fate, which almoſt all the lands in England are forced to ſubmit to, by the preſent practice.

This is a very profitable graſs, and will produce three or four crops in a year, that is, three to mow, and one to feed cattle the following winter.

It very much enriches ground, and chokes up and kills weeds. It ſucceeds beſt on a good loamy ſoil, but will grow very well upon chalky, and moſt other kinds of land that will bear corn.

It is good for cattle, ſheep and ſwine, either in the green herb or hay, and cauſes great increaſe of milk.

When cattle are turn'd in to feed at large upon it, this muſt be done gradually, and with great caution; for if they are at once but moved from common graſs into this, they will over-feed upon it, and even burſt themſelves. They are therefore to be put in at firſt only for half an hour in the middle of the day; the ſecond day they may be left in an hour, and the third, two or three hours. After this, for three or four days, they are to be turned in as ſoon as the morning dews are off the ground, and driven out again before the evening dews fall; after which it may be ſafe to let them remain in it entirely.

It is no bad method ſome have of ſowing rye-graſs with clover, as it prevents it from blowing, (ſwelling) the cattle. This upright graſs grows well enough among the branches of the clover, ſhooting up its ſtalks above it, and being eaten with it, takes off from its too great richneſs, at the ſame time that it makes the crop the larger.

In the ploughing for clover, you muſt lay the land as level as poſſible, and ſow the ſeed ſoon after the plough, harrowing it with a buſh harrow, and at the ſame time a roller ſhould be drawn over the ground to preſs in the

the ſeed, and to make the ſurface cloſe and ſmooth.

This herb will bloſſom and bring ſeed the firſt year of ſowing: but when you have a mind to ſave ſeed from it, you muſt cut the firſt crop as ſoon as the clover begins to knot or joint, and the crop following muſt be left for ſeed: when you can cut it only twice, becauſe of the time the ſeed takes to ripen. You muſt remember to let it ſtand till the ſeed is full ripe. An acre will commonly produce about five buſhels of clean ſeed.

Though this herb be cut cloſe, it is not long before it ſprings; and when the laſt cutting every ſummer, either for hay or ſeed, is over, the beſt management to preſerve it is, to turn in cattle upon it, to feed it bare before winter comes on, leſt it grow too rank to bear the froſts, and then it will be ſafe: for the froſts, though they often deſtroy the leaves of the clover, yet never hurt its roots, unleſs they happen to lie bare.

This graſs takes up more time and labour in the making into hay than the common graſs, and muſt be well attended.

The clover that is intended for ſeed, muſt be preſerved dry all the winter, and in the month of March it is to be threſhed for the ſeed. When ſeed firſt comes out, it is to be cleanſed from the ſtraw, and the husks then are to be threſhed again. When all is ob-

tained that can at one time, let the ſtraw be well dried in the ſun, and toſſed about with a rake; and then on the threſhing it again, more ſeed, in conſiderably quantity, will be obtained.

Clover or honeyſuckle graſs with white flowers. This graſs may be frequently ſeen growing with the common red honeyſuckle or marle graſs, but not near ſo common. If any perſon has a mind to try this large white honeyſuckle graſs, he muſt look into ſome meadow, where it grows naturally, and may ſtand till it is ripe; the roots ſhould be marked when they are in flower, and when the ſeed is full ripe it muſt be gathered by ſingle heads; and the April following it may be ſown in a little plat of ground, which will produce ſeed ſufficient to begin with: afterwards it may be ſown and ſaved in any quantities, as eaſily as broad clover.

Lucern (Medica) by ſome called Medica Clover. For ſowing this ſeed, obſerve the ſame method in ordering the ground as for other ſeeds. It muſt be ſown about the middle of April; and ſome oats may be ſown with it, but not ſo great a proportion as with other ſeeds. The land muſt be well dreſſed, and at leaſt three times fallowed. It may be mown twice or three times every year, and fed all the winter; the hay, if well made and ordered, is good fodder for all kind of cattle;

and

and there is no plant which increaſes the milk in cows ſo much as this, or will fat oxen ſo ſoon. It muſt be given with caution at firſt, for fear of ſurfeiting; ſo that it is beſt to be mixed with two thirds of barley-ſtraw for a fortnight, afterward an equal quantity of ſtraw will do. An acre will ſerve three horſes all the year at paſturage, and will ſoon raiſe them to fleſh and make them fat. It is of a warm nature, very nouriſhing and uſeful for fatting ſheep, as not being any ways apt to rot them.

If it be mowed but once a year, it will laſt ten or twelve years; but if oftner, not ſo long. The lucern in the field is alſo a very ſerviceable food for cattle: it thrives in all the different ſoils that can be met with. I can ſay that it grows equally ſtrong in every ſoil; but where it thrives leaſt it is much preferable to any graſs or clover that ever grew there before it. It is particularly a great improver of hot burning lands, which lie much expoſed to the ſun, having a very juicy ſtalk.

The firſt very year of ſowing it will be about eight inches high in two months; but don't cut it too ſoon, leſt you weaken the root. The ſecond year, if it is upon the ſoil it likes beſt, you may cut it three times, and leave a large crop upon the ground for winter. You muſt ſow one fourth leſs than you

do of the great clover, and it may be ſown like it.

The time of grazing upon the lucern, is from the end of September till the end of February, or a week later at fartheſt; and turn your cattle into the field as ſoon as you have carried in your laſt crop of hay from it.

Horſes feeding upon this graſs in the ſpring, are purged by it better than by any other other graſs; but they will be brought to it diſcreetly, and allowed the uſe of it very moderately at firſt: but it gives a horſe a gay appearance.

After the ſecond cutting of the lucern each year, you may if you pleaſe, let it ſtand for ſeed, which will ripen the ſame ſummer, then cut off the heads of ſeeds, and let them dry upon ſheets or baſs mats and threſh them out. Or elſe there is a mill, ſuch as they uſe for clover ſeed, which will clear them from the huſk much better. It is to be noted, that as ſoon as the heads of ripe ſeeds are cut from the plants, the lucern muſt be mown and made into hay, taking care to turn it often, that it may be thoroughly dried before the hay is carried into the barn: for it will not do well in a rick or cock. After this crop is mown, it will preſently recover itſelf for a winter graſs for cattle. The hay, if it is well dried, will keep two years.

Another method of ordering and ſowing lucern, which is by ſome thought preferable to the foregoing.

Chuſe a piece of land that is warm, pretty deep, and dry; let it be fenced, and ploughed a foot deep; or if it is a ſmall piece of land, it may be trenched by men 16 or 18 inches deep, let the ſurface be made very ſmooth, either by harrowing or raking. With a gardener's hoe draw ſmall drills about an inch deep, and a foot and a half apart, all acroſs the land; and, if poſſible, the drills ſhould run north and ſouth.

The ſeeds muſt be ſcatterred equally thro' all the drills, and covered over about half an inch deep with the fine earth that came out. Six pounds of ſeeds is full enongh for an acre; for it muſt ſown too thick. The beginning of May is the beſt time to ſow this graſs, but it might be deferred a month or two longer if the land cannot be prepared ſooner.

In about three weeks or a month after ſowing, the lucern will appear in rows, when the ground ſhould be carefully hoed, and the weeds and wild graſs that come among the lucern in the rows pulled up with the fingers. If the lucern ſhould come up too thick in ſome places, and too thin in others, the young plants, where they are too thick, ſhould be carefully raiſed up with trowels &c. and planted where the rows are too thin; and

at the ſame time ſhould be watered; but if the ſeed ſhould come up too thick all over, it muſt then be thinned with diſcretion. Hoeing and weeding ſhould be frequently repeated, if the ground requires it.

The crop that was ſown the beginning of May will produce flowers in Auguſt, when you may begin at one end of the piece to cut, and carry it to the animals that are to be fed with it. By cutting a parcel every day, you ſhould go over the whole in ſix or ſeven weeks time, when you may begin again, and go on as you did before. In February the ſpaces between the drills ſhould be dug, and the weeds that grow among the lucern roots picked out, and buried at the ſame time. About the middle of May full wing, and ſometimes ſooner, you may begin to cut again, and ſo day by day till you go over the whole. This graſs will, in this manner, afford four or five cuttings every ſummer, beginning in May and ending in October; and ſo it may be continued many years, provided the ſpaces are dug every winter, and hoed in ſummer, every time juſt after the graſs is cut. Lucern ſeed might be ſaved in England, when it proves a hot dry ſummer.

Spurry. Spurry, ſpurgraſs, or ſtargraſs (ſpergula.) This graſs is well known in Germany and Flanders, from whence any one may have it. It grows about a foot high,

full

full of branches, reſembling a little buſh, the flower is white, and the plants appear without leaves: the flower is ſucceeded by litt'e white pods, like thoſe upon flax, which contain ſma l black ſeed, a little flat, with a whitiſh border round them. The richeſt milk, and the beſt butter in Germany is produced by this feeding; and it preſerves the cattle in health. It is there preferred before any other fodder; nay even before grain. The ſtraw alone is much more nouriſhing than the beſt hay, and the very chaff is eſteemed as good as hay for the uſe of cattle; and the grain is excellent for feeding pigeons and poultry in the winter; it will bring them to lay and breed very forward.

It is a plant of that nature, that the moſt barren ſandy lands will produce it, and it grows as well upon the moſt harſh ſurly gravels, or upon fallows. It may be ſown any time in the ſummer, though the ſoil be never ſo ſtiff; and upon chalk of any ſort. You may ſow it in March or April with oats for the ſake of the ſeed: and in Auguſt or after harveſt for feeding of cattle or ſheep. It is ſaid that mutton fed with ſpurry graſs has an excellent flavour. In a word, it is ſo advantageous to the husbandman, that no one ſhould be without it; for ſheep, goats, kine, all ſorts of poultry, and bees delight extremely in it. The land ſhould be very

fine

fine and even, and the ſeed harrow'd in with a buſh harrow; ten or twelve pounds of ſeed will be enough for an acre. As this graſs is annual, if it be ſown in March or April, the ſeed will be ripe in July or Auguſt.

Tereunial Dwarf Trefoil with white flowers, called Dutch Clover. Where the land is rich, this graſs will riſe above a foot high, with large leaves; but if poor, it keeps cloſe to the ground, and produces very ſmall leaves. It is generally ſown with other graſs ſeed upon ſuch lands as are deſigned to be kept for paſture or mowing. Sixteen or eighteen pounds may be ſowed upon an acre. This ſeed being ſmall, the land ſhould be made very fine before it is ſown, and then ſhould be lightly run over with a buſh harrow, and rolled in order to preſs down the ſeed, and to make the land cloſe and ſmooth. It may be ſown in ſpring upon corn, or any time after till the middle of Auguſt, if the weather ſhould be moiſt.

The beſt white clover ſeed comes from the Dutchies of Juliers and Bergs, and other neighbouring towns in Germany. It grows thicker, laſts longer, and covers the ground better than the ſeed which is imported from Auſtrian Flanders; and is larger, and of a brighter colour.

Rey Graſs or Bents. This graſs will laſt ſix or eight years; and will grow upon ſtiff clay

or

or gravelly soils, and succeed much better than other sort of grass will do upon such unkind land. It produces very early pasture for most kinds of cattle; and makes excellent hard hay, if it is cut while the sap is full in it. It may be sown in spring or August. If it is sown with oats or barley, two or three bushels of seed will be enough for an acre; but if it be sown a one, four or five bushels will not be too much, for grass is always better for being thick. It is often sowed with great clover to prevent it from blowing the cattle; and does also very well, mixed with white clover, upon moisty clay ground.

Birds foot, or Finger-grass. This grass produces yellow butterfly flowers, which are succeeded by three or four longish seed pods, growing on the tops of the stalks, which resemble the foot of a bird, or the fingers of a hand.

It is a lasting grass, and may be worth sowing with other perennial grass seeds. Farmer Ellis recommends it as an excellent grass for cow pasture, &c. Mr. Miller says, no animal will eat it either green or dry. Several times I have gathered many handfuls of it, which I gave directly to horses and horned cattle, and they eat it greedily.

Ribwort, or Lamb's tongue. This is the narrow leaf plaintain, which grows very common all over this kingdom. In some countres

tries it is ſown in ſpring, with other graſs ſeeds, for paſture, &c. being thought a very wholeſome herb for all ſorts of cattle. The ſeed being very ſmall, a pound or two mixed with the other graſs will be enough for an acre of land, but alone, there ſhould be four pounds.

How to get good Hay-ſeed. If we conſider that the proper time to mow graſs for hay is when the meadows are in full bloom, or juſt after, we ſhall eaſily perceive the impoſſibility of having the ſeed of the fineſt and beſt ſorts of graſs from common hay-lofts, as thoſe graſſes, perhaps, were cut a month or ſix weeks before their ſeeds were ripe.

To get good meadow graſs ſeeds, make choice of ſome fine upland meadow, that is ſtocked with the beſt kinds of graſs, and free from weeds. This graſs ſhould not be cut before the general part of the ſeeds are pretty near ripe when it ſhould be mown, and ſpread till it it is dry enough for threſhing. The ſeeds may either be threſhed out upon cloths in the field, or this work may be done in a barn, as is moſt convenient. The ſeeds muſt be made clean by ſifting, &c. and put into ſacks, in order for ſowing. Hay ſeeds thus ſaved, muſt be of great value; and far preferable in every reſpect to any other, to ſow for paſtures, lawns, &c. This hay will not be ſo valuable; but the great advantage of

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the ſeed will make ample amends for the loſs.

How to ſow Hay-ſeeds, and order the land. The beſt time to ſow hay-ſeeds is April or May, after the froſts are over; or in Auguſt, that the crop may get ſtrength before winter. Five or ſix buſhels of this fine hay-ſeed will be ſufficient for an acre. If five or ſix pounds of white Dutch clover was added to the hay-ſeed it would be the better, for graſs cannot well come too thick.

The land ſhould be made very clean and fine, by ploughing and harrowing before the hay-ſeed is ſown; and if any Dutch clover or perennial trefoil are to be added, they ſhould be ſown after the hay-ſeed; becauſe theſe ſmall heavy ſeeds are much eaſier diſperſed equally over the ground alone, than when mixed with lighter ſeeds. When all the ſeeds are ſown, they ſhould be harrowed in with buſhes or light buſh harrows, and the ſurface rolled twice in a place, in order to preſs in the ſeeds, and to make it ſmooth and firm.

From time to time, as bad weeds appear, they ſhould be rooted out, and not ſuffered to become large and rampant. In February or March, or ſooner, groſs land ſhould be rolled with a heavy roller, in order to ſqueeze down the ſmall hillocks, to leave the ground firm, and to make the turf come with a much thicker bottom.

Up-

Upland meadows require manuring more than paſture; and it is much better for the the land, when it can be alternatively meadow and paſture. Manures may be laid upon graſs-land any time from Michaelmas to Lady-day, as the work can be done with moſt convenience, but the ſooner the better. The beſt ſeaſon is generally thought to be in December, January and February. For ſuch grounds as are ſandy, hot and dry, uſe marle, chalk, lime, or the like cold ſoils; and for cold, ruſhy, ſpewy, and moſſy grows, uſe wood aſhes, turf of ſea coal; alſo pigeons dung, and all hot and ſandy ſoils. And between the two extremes, i. e. hot and cold, uſe the common dung that is made by horſes, &c.

Of watering and other particulars concerning Meadow and Paſture-land. Where you have an opportunity, and engines ſufficient to overflow your wet meadows, let it be done about ſix weeks before mowing time, and again afterwards for a ſecond crop, but mind never to let the water lie on the ground about forty-eight hours.

Dry meadows being often peſtered with ant-hills, ſhrubs, fern, broom, or gorſe, when they become ſo bad that they cannot be mowed without great loſs, plough up your mole-hills, &c. with a mole hill plough; then burn the hill to aſhes, which may be done with

with the help of a little ſtraw, &c. to ſet them on fire, and ſpread the aſhes all over your ground, and harrow them in with buſhes and it will produce a good crop.

Directions concerning the mowing of Graſs-land The beſt judgment that can be made of the time when graſs ſhould be cut for hay, is, when you find it going to ſeed, or that the ſeed-ſtems are full grown. Some graſſes indeed are ſooner ripe than others, and there is no field without mixture; but you muſt judge by the prevailing graſs in the field, and ſhould obſerve whether that this is in perfection, before you offer to mow your meadow. You muſt likewiſe examine, whether the graſs begins to turn yellow at the bottom, as well in the blade as in the ſtalk; for if it does, there muſt be no time loſt, as it would ſoon ſpoil all the reſt. The weather is next to be conſidered; whether it is likely to be a wet or dry ſeaſon, for the whole ſucceſs depends upon that, If the weather ſeems to be ſettled fair, then you may cut your graſs, according to the rules of reaſon; but if it has been very dry for ſeveral weeks before, and your ground is naturally dry, with a gravelly bottom, it is better then to feed ſuch graſs than to mow it, even tho' it ſhould be nearly ripe, as the roots in that caſe would be greatly weakened by being too much expoſed to the influence of the ſun, and hardly produce any other crop the ſame year;

and the ground would alſo be ſubject to crack. But if it be fed, there may likely come rain ſufficient to enrich the ground, ſo as to bring a good after-crop; and while feeding, the air and ſun will be gently admitted to the roots without ſcorching them. and aſſiſt the cattle at the ſame time in ſuch a manner, as may make them perhaps as much valuable, as the price of the meat they feed upon would come to. But ſuppoſe every thing concurs for the mowing of graſs; you muſt let it lie as thin as poſſible at firſt, in the day time, if the weather is fair, and againſt the evening make it up at firſt in ſmall cocks, which muſt be ſpread ſoon in the morning, if the fair weather is likely to continue; but if the weather inclines to rain, let it remain in cocks till it is fair. By degrees in good weather, as the graſs grows dry, the cocks may be enlarged, till at length the hay is quite dry, and fit to carry into the barn, or be made in ricks. But particular regard muſt be had to the dryneſs of the hay before it be carried in; for if any moiſture is remaining in it, it will be ſubject to fermentation, and burn all your ſtore.

The upland graſs will be much ſooner made into hay than the lowland; for the graſs of the uplands is generally fine and ſmall, and has few juices in compariſon of the lowland or marſh graſs. So the trefoils, clovers, ſaint-foin, lucern, and other French graſſes, will

will take more time to dry, than any of the common graſſes, becauſe they abound in juices.

Directions about mixing foreign Graſs-ſeeds, when intended only for hay or paſture, and not for ſeed. Some farmers ſow ten pounds of broad clover, and one buſhel of rey graſs or bents upon an acre. This mixture, they ſay, prevents the clover from blowing the horned cattle, when they have liberty to paſture intirely upon it.

In Buckinghamſhire they ſow five or ſix pounds of great clover, three pecks of black ſeed, which is nonſuch in the huſks, and half a buſhel of rey graſs on an acre. This, they ſay, makes both good hay and paſture.

Eight pounds of nonſuch trefoil, and the ſame quantity of great clover allowed for an acre, makes good wholeſome paſture for all ſorts of cattle; and, if cut when the trefoil is in full bloom, very fine hay.

Two buſhels of rey graſs, and one buſhel of black ſeed, or eight pounds out of the huſks, which is much the ſame, allowed for an acre, will produce exceeding good forward paſture, and likewiſe the beſt of hay. If the rey grraſs is a full crop, it may remain upon the land ſeveral years. I have obſerved both rey graſs and nonſuch will ſucceed well on cold, ſtiff, chalky, or graveliy land.

Six pounds of nonſuch trefoil, ſown with ſain-foin upon an acre, would be of great advantage to the firſt crop of hay. The quantity of ſain-foin ſeed need not be leſſened for this; becauſe the trefoil will be gone after the firſt mowing.

The foreign graſs ſeeds mixed may be ſown with corn in the ſpring, as is before directed.

Some farmers make no allowance for graſs ſeed, but ſow the ſame quantity of corn upon an acre, as if there was none; when they might ſave at leaſt one third of the corn, and both crops would prove the better.

Of the Management of Turnips.

Turnips delight in a light, ſandy, loamy ſoil, which muſt not be rich; for in a rich ſoil they grow rank and are ſticky, but if it be moiſt they will thrive the better in ſummer, eſpecially in freſh land, where they are always ſweeter than upon an old worn-out or a rich ſoil.

The common ſeaſon for ſowing of turnips, is any time from the beginning of June to the middle of Auguſt, or a little later; though it is not adviſeable to ſow them much after, becauſe, if the autumn ſhould not prove very mild, they will not have time to apple before winter, nor will the roots of thoſe which are ſown after the middle of July, grow very large, unleſs the froſt keeps off long in autumn. But, notwithſtanding this is the general

neral ſeaſon in which the greateſt part of turnips are ſown in the country, yet, about London, they are ſown ſucceſſively from March to Auguſt, by thoſe who propagate them to ſupply the markets with their roots; but there is a great hazard of loſing thoſe which are ſown early in the year, if the ſeaſon ſhould prove dry, by the fly, which will deſtroy whole fields of this plant while young ſo that where a ſmall quantity for the ſupply of a family is wanted, it will be abſolutely neceſſary to water them in dry weather; and where a perſon ſows thoſe ſeeds in Aprill and May, it ſhould always be upon a dry ſoil; otherwiſe they ſeldom come to good, the heat of the weather at that ſeaſon being to great for them upon a dry ſoil but thoſe which are ſown towards the middle or latter end of June, commonly receive ſome refreſhing ſhowers to bring them forward; without which it is very common to have them all deſtroyed.

Theſe ſeeds ſhould always be ſown upon an open ſpot of ground; for if they are near hedges, walls, buildings, or trees, they will draw up, and be very long topped, but their roots will not grow to any ſize.

They are ſown in great plenty in the fields near London, not only for the uſe of the kitchen, but for food for cattle in winter, when there is a ſcarcity of other food; and this way is become a great improvement to barren

barren ſandy lands, particularly in Norfolk, where, by the culture of turnips, many perſons have doubled the yearly value of their ground.

The land upon which this ſeed is ſown, ſhouldbe ploughed in April, and twy-fallowed in May, that is once more ploughed and twice well harrowed, and made very fine; then the ſeed ſhould be ſown pretty thin; for it being ſmall, a little will ſow a large piece of ground; one pound is the common allowance for an acre of land. The ſeed muſt be harrowed in as ſoon as it ſown, with a ſhort-tined harrow, and the ground rolled with a wooden roll to break the clods, and make the ſurface even. In ten days or a fortnight after ſowing, the plants will come up; at which time, if the ſeaſon ſhould prove dry they will be in great danger of being deſtroyed, by the fly; but if it ſo happen, the ground muſt be ſowed again, for the ſeed being cheap, the chief expence is the labour; but the ground ſhould be firſt harrowed to looſen it, eſpecially if it is ſtiff.

When the plants have got four or five leaves, they ſhould be hoed to deſtroy the weeds, and to cut up the plants where they are too thick, leaving the remaining ones about ſix or eight inches aſunder each way, which will be room enough for the plants to ſtand for the firſt hoeing; the ſooner this is performed

performed, when the plants have four leaves the better they will thrive ; but in the ſecond hoeing, which muſt be performed about a month after the firſt, they ſhould be cut up ſo as that the remaining plants may ſtand fourteen inches diſtance, or more, eſpecially if they are deſigned for feeding of cattle, for where the plants are allowed a good diſtance, the roots will be proportionably large; ſo that what is loſt in number, will be over-gained by their bulk, which is what I have often obſerved. But in ſuch places where they are ſown for the uſe of the kitchen, they need not be left at a greater diſtance than ten inches or a foot, becauſe large roots are not ſo generally eſteemed for the table.

The greateſt evil which attends a crop of turnips, is that of their being deſtroyed by the fly, which uſually happens ſoon after the plants come above ground, or while they are in the ſeed leaf; for, after they have put out their rough leaves pretty ſtrong, they will be paſt this danger. This always happens in dry weather; ſo that, if there ſhould be rain when the turnips come up, they will grow ſo faſt, as to be in a few days out of danger from the fly, and it hath been found, that thoſe, which were ſown in drills, have eſcaped the fly much better than thoſe ſown in broad-caſt; but, if ſoot is ſown along the ſurface of each drill, it will be of great ſervice to keep off the

the fly, and a ſmall quantity of it will be ſufficient for a large field, where the drills only are to be covered.

Another danger of the crops being deſtroyed, is from the caterpillars, which very often attack them when they are grown ſo large as to have ſix or eight leaves on a plant. The ſureſt method of deſtroying theſe inſects is to turn a large parcel of poultry into the field, which ſhould be kept hungry, and turned early in the morning into the field; theſe fowls will ſoon devour the inſects, and clear the turnips.

In order to ſave good turnip ſeeds, you ſhould tranſplant ſome of the faireſt roots in February, placing them at leaſt two feet aſunder each way, obſerving to keep the ground clear from weeds, until the turnips have ſpread ſo as to cover the ground, when they will prevent the weeds from growing. When the pods are formed, you ſhould carefully guard them againſt the birds, otherwiſe they will devour it, eſpecially when it is near ripe; at which time you ſhould either ſhoot the birds as they alight upon the ſeed, or lay ſome bird-limed twigs upon it, whereby ſome of them will be caught; and, if they are permitted to remain ſome time, and afterwards turned looſe, they will prevent the birds from coming thither again for ſome time, as I have experienced. When the ſeed is ripe it ſhould be cut up, and

ſpread

ſpread to dry in the ſun; after which it may be threſhed out, and preſerved for uſe.

The chief uſe of turnips is, to feed cattle in the winter and ſpring, when there is a want of graſs for their paſture. Cows, oxen, and hogs, are very fond of this food, which fattens them and increaſes the milk of the former. Sheep too eat it readily, and thrive upon it, when they have been uſed to it early; but they do not reliſh it when it has not been offered them till they are grown old; however, if they are kept faſting two or three days, moſt of them take to it, and when they have once taſted it, they become very fond of, and feed kindly upon it. In ſome places, they feed their lambs with turnips till the middle of April, though they then begin to run up to ſeed. Farmers chooſe rather to do this, then to let them hurt their clover, ſainfoin, lucerne, &c. Some parboil them a little, at firſt, till their cattle, and particularly their ſheep, are accuſtomed to them; but a lamb only three weeks old, will, after it has once eaten of this food, ſcoop out a raw turnip with great glee.

Turnips, if not clean eaten, and well cleared off the ground, may take root again, run to ſeed, and do great damage to the enſuing crop.

The practice of turning a flock of ſheep, at random, into a large field of turnips, is very bad; for they will then ſpoil more in a fortnight then would keep them a whole winter. The

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beſt way, therefore, of feeding them with theſe roots, is one or other of the three following methods, which are equally applicable to the drill, and to the common husbandry.

The firſt is, to portion out the turnip-ground, by incloſing with hurdles ſo much only as the ſheep can clear in one day; and ſo to advance the folds further into the field every morning, untill all be ſpent. But it is to be obſerved, that the ſheep never eat them clean this way, but take only the leaves and the heart of the turnip: ſo the greater part of them remains in the earth. It is true that theſe fragments, if left there, rot, and become a manure; but when they are wanted for the food of the flock, and are to that end pulled up with iron crooks or forks made for this purpoſe, the ſheep do not reliſh, and conſequently eat but little of, theſe then dirty withered remains, tainted with their urine, dung, &c. nor can they nouriſh them ſo well as roots which are cleanly.

The ſecond method differs from the former only in pulling the turnips ſo far as they are hurdled off, before the ſheep are turned in. They then eat them better, becauſe the food is freſh and in good condition. Beſides, as the whole turnips are pulled up more eaſily than their pieces can be, there is not ſuch waſte as in the other way. The turnips which grow next to the hurdles ſhould be

thrown

thrown towards the middle of the ſpace hurdled off, becauſe they will be leſs liable to be trampled upon and ſpoiled there, than nearer to the hurdle, where the ſheep run moſt, in ſearch of means of eſcaping into the open field.

The third way is to pull up the turnips and carry them into ſome other ground, and there ſpread them every day on a new place, where the ſheep will eat them up clean. This is done when there is land not far off, which has more need of dung than that where the turnips grow. The expence of carrying the turnips is compenſated by ſaving the price or at leaſt the carriage and removing of the hurdles: only when the turnips are laid on a ſpot of graſs, as is frequently done in wet weather, the benefit of the dung and urine of the ſheep is loſt.

Of the Management of various ſpecies of Corn, as Wheat, Barley, Oats, &c.

General Rules for all kinds of Grain.

Of CORN.

IF Corn be lodged, it may be cut before it is quite ripe; and if blighted, it cannot be cut too ſoon. But if neither of theſe accidents happen, both wheat and barley ſhould be ſuffered to ſtand till full ripe. The grain will alſo grow plumper by being left awhile in the field after cutting, to take the dew; but the ſtraw will be injured by it; nor muſt it by any means be laid up damp in the mow, leſt it heat, and become what is called mow-burnt; and perhaps take fire. A great number of weeds will produce the ſame effect, if the corn be houſed before their ſtalks are ſufficiently withered.

A correſpondent of the authors of the Muſeum Ruſticum tells us, that in the year 1763,

1763, he had twenty acres of barley, which was rather weedy at harveſt: on which account he was deſirous of giving it as much field room as he could conveniently; but the weather promiſing to be very wet, he was obliged to cart his barley, which he put into the bay of a large barn.

Whilſt this work was going forward, he was called away, and in his abſence his ſon got a horſe upon the mow to tread it; by which means, the weeds, not being thoroughly dry, cauſed the barley to heat to ſo violent a degree, that he was very apprehenſive of its firing.

"My men, adds he, were in a violent hurry to get it out of the barn: but this I would by no means conſent to. I however ordered one of them to get upon the mow with a cutting-knife, and cut in it a round hole like a well. He began the work; but in about five minutes, being almoſt overcome by the heat, I ſent another to relieve him; and thus they worked ſpell and ſpell, till they got to the bottom.

"This round hole ſaved my barley, and perhaps my barn too; for it formed, as it were, a chimney or flue, to carry off the heat.

Of the Management of Barley.

BARLEY is generally ſown either after a fallow, or on an erſh or ſecond crop. If after a fallow, the land muſt be ploughed at leaſt three times; and at the firſt ploughing, it ſhould be laid in ſmall ridges, and in that manner remain during the winter for the froſt to mellow it: but if another ploughing can be given it in January, or in the beginning of February, the ground will be ſtill much better broken and prepared. In March theſe ridges are ſplit, the ground is well harrowed, and laid as ſmooth as can be, and, if poſſible, it is ploughed again the ſame day, in order to ſow. But in ſtrong wet lands, the beſt way is to lay it around, and make deep furrows to receive the water.

Some at the time of twi-fallowing in June, make the land very fine, and ſow it with turneps

turneps, which they feed ſheep with in the winter; and in March they plough it up, and order it as before: but others, who take this method of ſowing turneps, give it only one ploughing in March, juſt before they ſow.

Thoſe who ſow barley upon an erſh, after wheat, plough up the wheat ſtubble in as dry weather as they can, as ſoon as the time of ſowing wheat is over, which is generally about the beginning of October, and lay three ridges into one, if they have dung to ſpread upon it: but if they have not, they plough it in ſmall ridges, as before directed, that it may be the drier, and be the better mellowed by the froſt: they then plough it up again in March, and order it as before. Some farmers injudiciouſly ſow their barley after oats, in which caſe, neither of theſe three ploughings ought by any means to be neglected; and the land will be in much better order if the firſt of them be given in October: or, if the harveſt be early, the weather dry, and the husbandman can poſſibly find time to do it, he will improve his ground ſtill more, by ploughing it up before he ſows his wheat, juſt as harveſt is in: this will be half as good as a ſummer's fallow. But all years will not admit of this practice.

After the barley is ſown and harrowed in the ground it ſhou'd be rolled after the firſt ſhower

of rain, to break the clods and lay the earth ſmooth; which will render it better to mow the barley, and alſo cauſe the earth to be cloſer to the roots of the corn, which will be of great ſervice to it in dry weather.

And alſo when the barley has been up three weeks or a month, it will be a very good method to roll it over with a weighty roller, which will again preſs the earth to the roots of the corn, and thereby prevent the ſun and air from penetrating the ground, which will be of ſingular ſervice in dry ſeaſons; and this rolling of it before it ſtalks, will cauſe it to tiller out into a greater number of ſtalks; ſo that if the plants ſhould be thin, this will cauſe them to ſpread ſo as to fill the ground, and likewiſe ſtrength the ſtalks.

The land which lies both very dry and healthy, and in which both mellowneſs and lightneſs are joined to a proper ſtrength of ſoil, is that which produces the beſt body, and thineſt rinded barley; qualities which always recommend this grain, eſpecially to the maltſters. Such generally is the barley of the growth of the hilly countries. But poverty of ſoil is no means requiſite in land, in order to its producing a plump and thin rinded barley: though it is allowed, that poor land which lies dry and warm, will bear better corn of this kind, than rich land in a cold and wet ſituation: for barley does not ſtand ſo much

much in need of ſtrength in the land, as of the healthineſs and warmneſs of the ſoil; though both are beſt where they can be had.

With regard to the choice of ſeed-barley, it is neceſſary to obſerve, that the beſt grain for ſowing is that which is not blackiſh at the tail, nor has a deep redneſs, but is of a pale lively colour, intermixed with a bright whitiſh caſt, and if the rind be a little ſhrivelled, it will be ſo much the better; for that ſlight ſhrivelling occaſioned by its having ſweated in the mow, is a ſure indication that its coat is thin. The huſk of thick rind barley, being too ſtiff to ſhrink, will lie ſmooth and hollow, even when the inſide flour has been ſhrunk from it.

The neceſſity of a change of ſeed from time to time, by ſowing that of the growth of a different ſoil, is no where more evident than in the culture of this grain, which otherwiſe becomes coarſer and coarſer every year. But at all times in this, as well as in all other grain, the utmoſt care ſhould be taken that the ſeed be full bodied.

If the corn grows too rank as it is ſometimes thought to do in a wet ſpring, mowing is then much better than feeding it; becauſe the ſcythe takes off only the rank tops, but the ſheep feed upon all indifferently; nor ſhould they even in any caſe be left upon it

too long, becauſe being particularly fond of the ſweet end of the ſtalk next the root, they will bite ſo cloſe as to injure the growth of the plant.

Barley is ripe when the red roan, as the farmers call it, meaning a reddiſh colour on the ear, is gone off, when the ears droop, and fall, as it were, double againſt the ſtraw, and the ſtalks have loſt their verdure. If it be full of weeds it muſt lie in the ſwarth till they are dry. It is not apt to ſhed; but in wet weather it will be apt to ſprout or grow muſty; and therefore every fair day after rain it ſhould be ſhook up and turned; and when it is tolerably dry, let it made up into cocks; but be ſure never to houſe it till thoroughly dry, leſt it mow burn, which will make it malt worſe than if it had ſpired in the field. The common produce of barley is two or three quarters upon an acre.

Of the Management of Wheat.

AS a crop of wheat is in general, the principal riches of farmers whose farms consist of arable land, I shall be very full in describing the best method yet practised with success, for cultivating this useful species of grain; and in order to this, shall begin with the method of preparing the soil by ploughing, harrowing and rolling.

Ploughing increases the food of plants, by opening the soil to receive the vegetable food from the air; and by enlarging the surface, and thereby exposing a greater quantity of the soil to its influence,

It enlarges the pasture of plants, by opening the soil, if too solid, and making it firm if too light. And prepares the vegetable food for entering the root of plants, by reducing vegetables to a state of corruption, and dissolving oils.

It may be ſaid, that ploughing is one of the moſt important operations in agriculture, and that the greateſt care is to be taken in the performance of it.

Though ploughing in general ſerves all the purpoſes mentioned, yet commonly one of them is chiefly in view; and according to the deſign in view the work is to be performed.

When the deſign of ploughing is to encreaſe the food of plants, the ſurface cannot be made too uneven; for the more uneven the ſurface is made, the greater quantity of the ſoil is expoſed to the influence of the air, and the greater quantity of the food procured.

When the deſign of ploughing is to enlarge the paſture of plants, that kind is beſt that goes deepeſt, (provided the ſoil allows) and moſt effectually breaks the mould; for the deeper the plough goes, the greater quantity of ſoil is employed in vegetation; and the more effectually the mould is broken, the larger is the paſture in the ſame quantity.

When the deſign of ploughing is to deſtroy root-weeds, the ſurface cannot be left too rough, nor the earth of the furrow raiſed in too large pieces; for the rougher that the ſurface is, and the larger the pieces of earth raiſed, the drought has the eaſier acceſs, and

more

more effectually operates in the deſtruction of the roots.

When the deſign of ploughing is to deſtroy ſeed-weeds, the ſurface cannot be made too ſmooth, nor the mould too much broken; for the ſmoother that the ſurface is made, and more effectually that the mould is broken, the ſeeds are the more expoſed to the influence of the air, the ſap better preſerved, and their vegetation better preſerved.

When the deſign of ploughing is to remove wetneſs, the land muſt be laid up in high and narrow ridges; for the greater number that there are of furrows, there are the greater number of drains; and the higher that the ridges are, the more eaſily the water finds its way to the furrows.

In ploughing there are ſome general rules to be obſerved, whatever is the deſign of it. Thus land is never to be ploughed when it is wet. When land is ploughed wet, the deſign of ploughing, whatever it may be, is fruſtrated; and this holds true in every kind of ſoil.

When ſtiff ſoil is ploughed wet, by drying too ſuddenly, it becomes hard, that it can receive no benefit from the air, and the paſture in it is entirely ſhut up; root weeds ſtrike root again before the drought reaches them; and if there are any ſeed-weeds, the ſurface

cruſts

cruſts ſo ſoon, that they are prevented from vegetating.

When light ſoil is ploughed wet, though it may receive ſome benefit by expoſing a larger ſurface to the influence of the air, yet its pores, being full of water, will prevent its paſture from being enlarged; that the root-weeds that are in it will be deſtroyed; they will rather flouriſh, by being tranſlated into a new paſture.

The ordinary way of harrowing after ſeed is ſown, is firſt along the ridges, then acroſs, and then along again. If ridges are flat, they may be harrowed either along or acroſs; and the work may be begun or ended either way. But if the ridges are ſteep, it is improper to begin by harrowing acroſs, becauſe thereby too much of the ſeed will be drawn into the furrows. If the ridges are very ſteep, for the ſame reaſon, it is improper to harrow acroſs at all. For another reaſon it is thought improper to harrow acroſs ridges when the land has been ploughed immediately out of lea or graſs. In ploughing this kind of land, the ſward is for the moſt part turned over whole; ſo that when the harrow goes acroſs, inſtead of tearing the ſward, it is apt to turn it back into the furrow from whence it was taken. When ridges are gathered or caſt, this will probably happen. In caſting, the earths of the furrows on one ſide of the ridge are turned

ed towards the crown; and, in gathering the earths of the furrows on both ſides are turned the ſame way; and therefore the harrows, when drawn from the crown to the furrow, are apt to take hold of the unbroken ſward, and turn it back. But this does not ſo readily happen when the ridge is cloven. Becauſe in cleaving, the earths of the furrows on both ſides of the ridge being turned from the crown, the harrows, in going up from furrow, are not in ſuch danger of turning them back. In ploughing lea, the earths of the furrows are ſometimes placed as exactly as poſſible upon their edge, that ſo they may be the more eaſily torn by the harrows. When theſe are turned to the crown, they do not ſupport each other; and are therefore eaſily turned back by the harrow, in going from the crowns to the furrows: but when the earths are turned to the furrows, ſo they ſupport each other by their weight; and therefore are not ſo eaſily turned back by the harrows in going up from the furrows to the crowns.

Rolling of land is practiſed with ſucceſs, both on land lying in graſs and on land in tillage. It is of advantage to land in graſs, by preſſing down mole-hills and mole-runs. It's ſaid, that it alſo deſtroys fog.

When land is laid down in graſs for hay, rolling is of uſe in ſmoothing the ſurface; and when laid down in graſs for paſture, it makes

makes the graſs ſtool, or tiller, and grow thicker.

There is a kind of land, which, when clover is ſown upon it, throws out the young plants after froſt. Rolling, in the beginning of winter, and immediately after the froſt is gone, it is ſaid, will, in ſome meaſure, prevent this. The firſt rolling prevents the froſt from penetrating ſo deep, as otherwiſe it would do; and the ſecond makes the land firm, after having been looſed by the change from froſt to open weather.

Rolling may be uſed with advantage upon land in tillage. When the land is naturally ſtiff, and may be reduced by the harrow, rolling is very improper; for it makes this kind of land ſtill firmer than the harrow does. But if the land riſes in clods, which the the harrow does not reduce, rolling is very proper; for it ſmooths the ſurface, and breaks the clods, more effectually than harrowing.

When the land is light and ſpungy, the roller ſhould always be applied after ſeed is ſown, for it is ſcarcely poſſible to make the land too firm.

But however all the operations of ploughing harrowing, and rolling are performed, ſomething will be ſtill wanting to promote vegetation, and this want is effectually ſupplied by certain ſubſtances called manures. To apply theſe ſubſtances in ſuch a manner, as moſt effectually

tually to promote vegetation, it is of importance to know their natures, and the ways in which they operate. This is the more neceſſary, as, without it, we cannot know how to apply them in the moſt proper manner to the different ſoil.

Manures are very different in their natures. Some of them operate in all the ways mentioned; and there are none of them that do not operate in more ways than one.

The manures generally procured are dung, marles, aſhes, ſoot, ſea weed, ſhells, ſown vegetables, and water.

Dung promotes vegetation, by communicating to the ſoil a power of attracting the vegetable food from the air. The earth which it contains, is of the abſorbent kind, and attracts all the other principles of the vegetable food; and the ſalts which it contains and produces, attract oils.

It likewiſe promotes vegetation, by preparing the vegetable food for the nouriſhment of plants.

It is a cuſtom in ſome places, to fold ſheep and cattle for the ſake of their dung; which in this way, is uſed without any mixture. Some writers on huſbandry give particular directions how to do this in the moſt advantageous manner. But it is needleſs to conſider theſe. The farmer muſt conſider the advantage of his ſheep and cattle, and not the ad-

vantage of the land by the dung; and therefore muſt fold them in the moſt convenient manner. A ſcore of ſheep, with the beſt management in folding, will not produce much more than ten ſhillings worth of dung, in the ſeaſon, above the expence of folding; a ſum ſoon loſt by an injudicious management of them.

Dung is moſt commonly mixed with vegetables, and allowed to lie for ſome time before it is uſed.

Straw is thrown before the cattle, and this is carried out along with the dung, and thrown upon the dunghill. On the dunghill is alſo thrown all the ſtraw that is left after ſerving other purpoſes, and all the refuſe of vegetables and animals, uſed in the farmer's family.

Dung expoſed to the ſun and wind, and waſhed by rain, loſes its vegetable food; it ought, therefore, to be ploughed in as ſoon as poſſible after it has laid upon land. Some perſons aſſert, that they have found from experience, that dung is nothing worſe, though it lies a conſiderable time upon land, in dry weather, before it is ploughed in. This, if true, is contrary to what has been ſuppoſed, that the vegetable food is exhaled by the ſun, and carried off by the wind. It is probable, that, after dung is ſpread upon land, its fermentation ceaſes, and the ſalts and oils remaining

maining in it may become fixed, and may continue so till a new fermentation is raised by mixing the dung with the soil; and that, by attracting acids from the air, more salts may be formed. By this its effects will be more sudden and violent, but sooner over.

It may be proper also to observe, that as the juices contained in the dung are washed downwards by the rain, it should be ploughed in with a very shallow furrow; excepting when the dung is not sufficiently rotten. In this case it requires a deep furrow to cover it.

The better that dung is mixed with soil, the purposes of vegetation are the better answered; all parts of the soil receive equal benefit, the vegetable food is equally distributed, and in all parts the fermentation equally promoted. When dung then is laid on land, it ought to be spread as equally as possible. This likewise prevents the breeding of vermin, which happens in some soils, when the dung is left in too large pieces.

Lime enlarges the vegetable pasture. By its weight it penetrates the soil; and, by its fermentation with acids, it separates its particles.

This operation of lime is obvious to every person that views with attention any land that is thoroughly limed. It appears soft and mellow, and obviously in a state of fermentation.

Lime diſſolves the vegetable food, and fits it for entering the roots of plants. It diſſolves all the animal and vegetable ſubſtances which it meets with in the ſoil, and converts them to vegetable food. We find from experience that lime clears land of root weeds. Root weeds, when torn up by the plough, have their growth checked, and are for ſome time in a languiſhing condition: if lime is applied to their roots while in this ſituation, by its diſſolving power it is apt to deſtroy them.

When lime is intended for a manure, a ſmall quantity applied at a time is ſufficient. It is probable, that it requires only a ſmall quantity of lime to impregnate a large quantity of earth, and to communicate to it an abſorbent quality, in as high a degree as it is capable of receiving: and it is certain, that it is in proportion to the abſorbent quality which it communicates that the ſoil is enriched by it. This is not merely conjecture. It is certain that a ſmall quantity of lime will impregnate a large quantity of water, and communicate to it all its virtues, and theſe in as high a degree too as it is capable of receiving: it is not improbable, that it may operate in the ſame manner upon earth. If a ſmall quantity of lime communicates an abſorbent quality to a large quantity of earth, but has not ſuch influence in diſſolving vegetable

getable ſubſtances, or in producing fermentation, it follows, that the ſmaller the quantity is, which is applied, it will operate the more as a manure; and the greater the quantity applied it will operate the more as a ſtimulus.

There are a variety of marles, which are commonly reduced to three ſorts: the clay, the ſtone, and the ſhell.

The clay and ſtone marles are of the ſame nature; the ſhell marle is very different from both. This makes it neceſſary to treat of them ſeparately.

Marle of the ſtone and clay kinds promotes vegetation in a ſurpriſing manner. It is probable, however, that it contains in itſelf few of the principles of which the vegetable food is compounded. Plants are not able to find their food in it. When in a bed below the ſurface, it reſiſts the entrance of water, like till or clay. When near the ſurface, and turned up by the great quantities, the ſoil is little better than till, almoſt quite barren.

The only difference between them is this: the clay marle is ſooner diſſolved than the ſtone marle; and commonly has a ſtronger power of deſtroying acids, and producing ſalts. Dr. Home ſays, that the clay marle, which he tried, deſtroyed a third more of acids than the ſtone marle.

Thefe marles ſeem to have much the ſame qualities with lime; and, therefore, muſt operate in the ſame manner.

As marle operates in the ſame manner as lime, it follows likewiſe, that limed land exhauſted by crops, can receive little benefit from the application of marle; and that marled land, exhauſted by crops, can receive little benefit from the application of lime, as it exhauſts the vegetable food, the proper nature after it is dug, which contains this food in the greateſt plenty.

When barren land is to be improved, the marle ſhould be laid on in large quantities: but when land is in good order, the applying a fifth or ſixth part of the quantity commonly uſed, once in ſix or ſeven years, may have very good effects.

Aſhes contain a large proportion of ſalt; they attract acids more violently than any other thing as yet known, but ſoon loſe their virtue.

The effects of aſhes will then be of the ſame kind with lime. But as aſhes contain ſalt, their operation will be more ſudden; as they attract acids with greater violence, and ſooner loſe their virtue, their operation will be more violent, and ſooner over. This is confirmed by experience. The firſt crop after land is manured with aſhes is commonly very

very luxuriant, and the second crop exhausts almost the whole of their virtues.

As the effects of ashes are sudden and violent, they should be applied in very small quantities; and as they operate in the same way with lime, they should not be applied to land exhausted by lime or marle; and should not be followed by these, nor repeated.

Turf is composed chiefly of vegetables; that which remains then after burning, must be of the same nature. To these the fertility communicated to the soil is chiefly owing. It is found from experience, that in proportion to the number of roots contained in the turf the burning turns out to advantage; and therefore land, with a tough sward of grass upon it, is recommended as the kind most proper for being improved in this manner.

The heat which part of the soil receives from burning the heaps of turf is supposed to contribute to its fertility: but this can have little influence except to destroy any seeds or roots of weeds that may be in the land.

In burning the turf, care must be taken to cover the heaps in such a manner as to prevent the fire from breaking out into flame. Where this happens, it is observed, that the ashes lose part of their virtue, and that the parts of the field manured by them are not so much enriched as the other parts are by the heaps of turf that are burned without flame.

It

It is natural to think, that the earth of the turf, when properly piled up, will retain the oils of the vegetables, and prevent them from aſcending into the air in ſmoke and flame.

To prevent burnt land from being exhauſted, one crop only, or two at moſt, ſhould be taken, and then turned into graſs for paſture. If a little dung is added after the firſt crop, its fertility will be the longer preſerved.

Soot cannot be procured in ſuch large quantities as to be uſed by itſelf, excepting in the neighbourhood of large cities; it is needleſs therefore to inſiſt much upon it.

It contains oil, ſalt, and earth. Theſe, it ſeems are compounded in ſuch a manner as to be ready to be conveyed into the roots of plants by water. For the effects of ſoot, when ſpread upon the ſurface, are diſcovered immediately after the firſt rain. It promotes vegetation in the ſame manner as dung, or ſhell marle. It increaſes the food of plants by the ingredients of the vegetable food which it contains. It enlarges the paſture of plants, enables the ſoil to attract the vegetable food from the air, and prepares it for entering the roots of plants by the ſalt that it contains, which is of the alkaline kind, attracts and ferments with acids, and attracts and diſſolves oils.

As

As it contains great plenty of vegetable food, and as its effects are ſudden, it muſt be laid on in very ſmall quantities. Sowing it the ſpring on winter corn or graſs, ſeems to be the moſt proper way of uſing it.

When the quantity laid on is but ſmall, and its effects ſudden, it cannot be ſuppoſed to laſt long. Its virtues are commonly exhauſted by one crop.

When its effects are over, the ſoil in left in the ſame ſituation as before it was laid on, nor exhauſted of its vegetable food, as by lime or aſhes; and therefore it may be repeated; or it may be followed by theſe manures, as it is very proper to be applied to land that is exhauſted by them.

All the plants that grow upon the rocks within reach of the ſea are good manures. Thoſe that grow upon the rocks that are almoſt always covered by the water, are the richeſt.

Some kinds of ſea-weed are burnt for kelp. This, it is thought turns out to greater advantages than uſing them as manures.

They are of a ſoft pulpy nature, diſſolve, and ſoon putrefy; and they contain oil, ſalt, and earth. They muſt promote vegetation therefore in the ſame manner as dung or ſoot.

Their effects are ſooner over than thoſe of dung mixed with vegetables from a dungill; for

for they ſooner diſſolve and conſequently ſooner putrify.

They may be applied to ſoil in any ſituation, and are very proper for land that is exhauſted by lime or aſhes.

When their effects are over, the land is in no worſe a ſituation than before they were applied and any kind of manure may be applied after them.

The oftener they are applied, the land becomes the richer; for the earth of which they are compounded, is of the abſorbent kind. The land near the ſhores, where theſe ſea-weeds are in great plenty, and have been ſo long uſed as manures, are among the richeſt in Scotland, and have been kept conſtantly in tillage.

In many places, near the ſea ſhore, broken ſhells are found in beds. Theſe are uſed as a manure.

They ferment with acids, and like other animal ſubſtances, contain oil, ſalt, and earth. The oil and ſalt are not in great quantities in proportion to the earth.

Their operation muſt be of the ſame kind with that of ſhell marle.

It is a practice in ſome places to ſow turnip, buck-wheat, peaſe, &c. on land; and when grown up, to plough them down for manures.

Theſe

Thefe may be called vegetables in an entire ſtate, to diſtinguiſh them from dung made of putrified vegetables; though no vegetable can be a manure till it is putrified.

Wheat ſhould be ſowed in autumn, and always when the ground is moiſt. In the downs of Hampſhire, Wiltſhire, and Dorſetſhire, farmers begin to ſow their wheat in Auguſt, if any rain has fallen, and even employ their people to ſow one place while they reap another, if wet weather interrupts them in their harveſt; for if the corn is not forward in autumn, ſo as to cover the ground before winter, it ſeldom does well on thoſe high dry lands, eſpecially if the enſuing ſpring prove likewiſe dry. In low ſtrong lands, ſome huſbandmen think they are in good ſeaſon, if they get their wheat into the ground by the middle of November; nay, it ſometimes is Chriſtmas, or even later, before all their wheat is ſown. But this late ſown wheat, beſides being apt to run too much to ſtraw, eſpecially if the ſpring be moiſt, is liable to be thrown out of the ground by froſts.

In general, all wheat ſucceeds beſt upon ſtrong ſoils, eſpecially if they have been well drained, ſo that the corn lies dry: but as ſome ſorts of this grain thrive better in ſome ſoils than others, it might redound to the public welfare if more particular obſervations were judiciouſly made in regard to each kind,

than

than have hitherto been. The white egg-ſhell wheat is reckoned beſt for light lands, and to ſow with rye for meſlin; becauſe it ripens ſooneſt. It ſhould alſo be the ſooneſt in the ground, This ſpecies is much ſown in Eſſex, upon their hazely brick earths, or loams; as the red wheat, and the Poland bearded wheat alſo is there, and in Hertfordſhire upon ſtiff yellow clays. The white Poland, or pole-river wheat has not a hollow ſtraw, and therefore not ſo ſubject to lodge as other corn that has. This kind is particularly fit for lands where the crop is apt to run much to ſtraw.

In Oxfordſhire, they have a ſort of wheat which they call long coned wheat, and reckoned the beſt for rank clays. Its ſtraw not being hollow, it is the leſs liable to lodge, and farmers allow that it is the leaſt apt to be mildewed, or be eaten by birds, from which laſt it is greatly guarded by its long rough awns; but the flour of it is ſomewhat courſe. Their white kind of red eared wheat has a white ear and a red grain, and is a very good ſort for clayey land. It yields a good crop, and ſeldom ſmuts.

In Staffordſhire, they reckon the red Lammas or bearded wheat the beſt for cold lands or ſtiff clays.

In Berkſhire is a wheat called pendulum

wheat

wheat, from the hanging of its ear, much like the cone wheat.

In Northamptonshire, they have a sort of wheat with a white straw and reddish ear and grain; much commended for the plumpness and largeness of the grain, and the strength of the straw, which prevents its being subject to lodge; & not apt to be eat by birds. They have also a red eared bearded wheat, and a sort of pollard or duck-bill wheat, as it is called, known in Sussex by the name of fuller's wheat, which has so close and thick a husk, that the birds never injure it.

The best time for sowing wheat is about the beginning of September, especially if any rain has fallen; a circumstance so essential, that if the earth be very dry, the farmer had better stay till friendly showers have moistened his soil, than put his corn in ground where it will not grow before it has been wet, let the time be ever so long. Mr. Mortimer says he has known wheat to be so mustied and spoiled by laying long in the ground before rain came, that it has never grown at all: to which he adds, that he has likewise seen very good crops of wheat from seed sown in July. At all events, the husbandman should take care to have his wheat sowing finished by the middle of October. Whoever neglect this, shews in so doing, a want of proper œco-

nomy in his affairs, and will have cauſe to repent the delay.

Early ſowings require leſs ſeed than late ones, becauſe the plants then riſe better, and acquire ſtrength to reſiſt the winter's cold. More ſeed ſhould always be allowed for poor land than for rich, becauſe a greater number of plants will periſh on the former. Rich lands, ſowed early, require the leaſt ſeed of any.

Another circumſtance which the husbandmen ſhould carefully attend to in ſowing, is that his eſtimate of ſeed be formed, not from the capacity of any particular meaſure, but from the number of grains which the meaſure will contain; becauſe the grains of ſome growths of wheat are much larger than thoſe from off other lands, though not of the ſame ſpecies, and perhaps equally good. By not conſidering this; the ground will of courſe frequently be ſown too thick, or too thin: though I believe farmers are ſeldom apt to run into this laſt extreme. That they too often commit the former error, ſo manifeſtly contrary to their intereſt in every reſpect, is demonſtrated by reaſon, and by daily experience:---but neither of theſe is ſufficient to make them deviate from the beaten tract. Inſtead of the uſual allowance of three buſhels of ſeed wheat to an acre of land, repeated trials have ſhewn that half that quantity is generally

nerally more than ſufficient: conſequently a great deal of corn is actually thrown away; for the expence of purchaſing ſeed, which moſt ſkilful husbandmen do, at leaſt every other year, amounts to a conſiderable article in large farms, and in a whole country, merits the attention of the public, eſpecially in ſcarce years.

More ſeed is commonly ſowed upon new broke up ground, than upon that which has been longer in tillage. From half an inch to three inches is the uſual depth at which wheat is planted, according to the nature of the ſoil; the ſtiffeſt lands requiring the ſhalloweſt ſowing, as was before obſerved. The general cuſtom is, to ſow it under furrow, which is certainly moſt adviſeable if the ſoil be ſhallow, to prevent the plants being thrown out by the winter's froſts, or their roots being left bare by the drying winds in the ſpring. Some ſow in broad caſt, either with a ſingle caſt, or a double bout, harrowing once between; after which the ground is again harrowed ſeveral times, till the ſeed is well covered. However, a great deal of it will become the prey of birds, in this manner of ſowing. On the other hand, in planting the corn deep there is the greater danger of its being eaten off by the worms between the grain and the blade.

Great care ſhould be taken to guard againſt the rooks juſt at the time when the wheat is ſhooting up. Theſe miſchievous birds perceive its ſprouting much ſooner than the farmer can, and are led by the ſhoot to pick it up. They muſt therefore be carefully kept off the ground for a week or ten days at this ſeaſon; for at the end of that time the blade will be grown up, and the grain ſo exhauſted of its ſubſtance, that they will not give themſelves any trouble about ſtealing it. They never moleſt the wheat which is ſown about Michaelmas; becauſe ſo much grain of the late harveſt then lies ſcattered about the fields, that they find it eaſier to pick up that, than to ſearch for corn under ground, in the new-ſown lands.

No part of huſbandry requires the farmer's attention more, than keeping his land free from weeds. The common method of weeding is very abſurd: for in that practice the weeds are to grow till the wheat begins to ear, and they are in flower; by which means, the ground being covered by the corn, all the low weeds are hid, left to ripen, and ſcatter their ſeeds: only the tall weeds are taken out; and if the people employed are not careful, many of theſe will eſcape them, by being ſo intermixed with the ſtalks of the wheat, as not inſtantly to be diſtinguiſhed. At the ſame time great numbers of the plants of wheat

wheat broken and and trod under foot by the weeders.

To obviate these inconveniences, Mr. Millar recommends the methods now practised by good kitchen gardeners, who clear their ground with a small kind of hoe, which, if used among the wheat early in the spring, before the ground is covered by the blades of corn, will effectually eradicate all the weeds, especially if this work be done in dry weather; because, being small, they then soon wither and die. If the ground happens to be very full of weeds, it may be necessary to go over it a second time, about a fortnight after the first, to cut up those which may have been too small to be noticed. By this means the corn will be kept clean, freed from robbers which would deprive it of due nourishment, and there will not be time for new weeds to grow so as afterwards to do it any great prejudice: for the ground will be so much shaded by the corn, that the weeds will thereby be kept down, in such manner as not to ripen their seeds before harvest.

If, at the time of this operation, some of the plants are cut up where they grow too close, the rest will certainly be greatly benefited thereby.

Wheat is ripe when its straw is turned yellow, its ears hang, no greediness appears in the middle of them, and the grain is hard

when bitten. From four to five quarters is reckoned a good crop: but some would hardly credit how much beyond this the produce of good ground, thoroughly well cultivated, may be increased.

Both wheat and rye may be cut somewhat before they are thoroughly ripe, especially if they be lodged; for if the straw be broken, it will no longer convey any nourishment to the grain, because the grain will harden afterwards in the sheaf; whereas, if it be let stand till it is too ripe, it will shed greatly in cutting, binding, and carrying home. To prevent this inconvenience, tie it in the evening, and carry it off early the next morning. And indeed it must be allowed, that very great disadvantages necessarily attend the letting of some sorts of corn stand till their grains have acquired their utmost maturity. Both the chaff and the fodder are the worse for it; and if such ripe corn takes wet, the increase in malt is lost, if it be barley, it having already spent itself; and if be wheat, the quality of the flour is greatly impaired, and the quantity considerably lessened, But if corn be cut greenish, it will bear a pretty deal of wet without damage; for it will not imbibe the water like full ripe corn, but only take in so much as to be kindly fed thereby. Again, if any sort of corn be blighted, the sooner it is cut down, though but half ripe, the better

it

will be; for nouriſhment can no longer be conveyed to it by the ſtraw; but it will be fed by lying in the ear. The ſtraw would become more and more brittle, by ſtanding till the corn is ripe; and the grain comes the clearer from the huſk, when threſhed, if this blighted ſort be cut early.

One man, with a binder, may reap an acre of wheat, and ſomewhat more of rye, in a day, if the corn ſtand well; he will alſo clear about an acre of peas, vetches, &c. in the ſame ſpace of time.

The two uſual ways of cutting corn, are either with the ſcythe, or with the ſickle. The former is commonly uſed for oats and barley, or ſometimes, for very thin, ſhort wheat, and the ſickle is generally appropriated to the reaping of tall and thick wheat and rye. The ſcythe diſpatches ſo much more work than the ſickle, that the difference of expence between reaping an acre, or mowing it, is nearly in the propertion of five to two.

It is a well-know maxim that wheat ſhould be left for ſome days in the field, after it is cut, before it is inned: this, the farmers think, and not without reaſon, improves its quality; the dews plump the kernels, and the ſun brings it to proper and perfect ſtate of maturity.

Theſe then are the benefits that reſult from leaving the ſheaves for ſome time abroad; but

but it is neceſſary the weather ſhould be fine, or great loſſes are often the conſequence of this practice.

Sometimes, when the farmer leaſt expects it, the weather ſets in foul, and it rains for ſeveral weeks ſucceſſively: it is then very difficult to preſerve the wheat from being greatly damaged, notwithſtanding the contrivances that have been thought of for this purpoſe.

Some ſhock their ſheaves, ſetting them up in traves of ſix ſheaves of a ſide, and two to cap them; but this is a very dangerous method, and never, to be practiſed after much rain has fallen: if the ſheaves were dry when the traves were ſet up, from an expectation of its raining, it is great ſervice; but if the ſheaves are firſt ſuffered to be wet, ten to one but the corn ſweats, ſprouts and rots, by being cloſe confined from the action of the air.

After all, I am apt to think that it is full as well not to cap the ſhocks; for if the rain is not very heavy and conſtant indeed, the ears, provided they do not touch the ground, will dry nearly as faſt as they are wetted.

In Middleſex, Kent, and ſome parts of Eſſex they generally bind their wheat as they reap; but then it muſt be ſuppoſed that their crops are, for the moſt part, pretty clear from green weeds, which would otherwiſe cauſe the ſheaves to ſweat violently in the mow, and greatly damage to the corn.

When

When a farmer is ſo unfortunate as to have his wheatſheaves thoroughly wetted, if fine weather enſues, I would by all means adviſe him to unbind them, and afterwards ſpread them out to be dried by the ſun. This ſimple method will often prevent great loſſes, and the wheat may at laſt be got in in tolerable order.

If the rain, however, ſhould continue long, and there ſhould be danger of the kernels growing, which by obſervation he may eaſily judge of, I would adviſe the thinking farmer inſtantly to carry it home wet as it is, and afterwards manage it as I ſhall direct from my own frequent experience.

When the waggon, or cart, comes home loaded with ſheaves, let them be thrown promiſcuouſly into the bay of the barn; and not regularly moved; for it is neceſſary they ſhould lie hollow, that the air may get into the vacuities, and ſo prevent the ſheaves from heating during the little time they are to continue in the ſituation above deſcribed.

Let our farmer next prepare ſome cutting-boxes, ſuch as horſe meat is cut in, in Kent, and ſome other counties. The number of theſe boxes ſhould be according to the quantity of wheat he has wet; but three or four conſtantly kept going will do a great deal of work.

With

With these cutters let the ears be cut off from the wet sheaves; and when a sufficient quantity are collected from all the boxes, let them be put loosely up in sacks, and carried to a malt-kiln, there to be regularly and gradually dried; and when the first parcel is done, another is to succeed, and so on till the whole work is completed.

This method I can, from my own experience, recommend to our readers; and it is less expence than at first thought would be imagined. The heat of the kiln may be kept up higher than when malt is drying, as the chaff of the ear will prevent the kernel of the wheat from being damaged by the fire, unless the heat is very intense indeed; but it will, however, be proper to keep the ears gently stirring, with a fork, or rake, during the time they are drying.

In this management the farmer will find advantages; and his wheat will, with a very inconsiderable additional expence, be nearly as good in a wet harvest, as if it was housed in ever so good order, in fine sun shining weather.

If, by chance, after you have cut off the ears from the sheaves, the weather should change, and become fine, you may often dry them without the assistance of the kiln, by spreading them thin on a large threshing-cloth, and turning them frequently with a wooden rake;

rake; and even, if by this method you ſhould not entirely dry them, it will ſtill bring them ſo forward that the kiln will eaſily complete the cure.

I muſt, however, before I conclude, caution the farmer, not to ſuffer the kiln to be much heated, unleſs the ears are kept conſtantly ſtirring during the time they are drying.

Of the Management of Oats.

OATS. Mr. Miller reckons four ſorts, cultivated in England, viz. the white, the black, the brown or red, and the naked oat, in which, though ſuppoſed to be only accidental varieties, he has never obſerved any alteration where they have been cultivated ſeparately for many years. Their principal difference is in the colour of their grain.

The white ſort, which is moſt common about London, makes the whiteſt meal, and is chiefly cultivated where the inhabitants live much upon oats. The black oat is more cultivated in the northern parts of England, and is eſteemed a hearty feed for horſes. Red oats are much cultivated in Derbyſhire, Staffordſhire, and Cheſhire, but are ſeldom ſeen in any of the counties near London, tho'

as

as they are a very hardy ſort, and yield a good increaſe, they will be well worth propagating, eſpecially in all ſtrong lands. The ſtraw of theſe oats is of a browniſh red colour, as is alſo the grain, which is very full and heavy, and eſteemed better food for horſes than either of the other ſorts. The naked oat is leaſt common in the ſouthern parts of England; but in the northern counties, in Scotland, and in Wales, it is pretty much cultivated, and is particularly eſteemed, becauſe its grain threſhes clean out of the huſk, and need not be carried to the mill, to be made into oat-meal or griſt.

Oats are often ſown after a crop of wheat, rye, or barley; in which practice the common method is to turn in the ſtubble, with one ploughing, about the beginning of February, and ſow the ſeed with a broad-caſt at twice, harrowing it in, once after the firſt ſowing, and five or ſix times after the ſecond, obſerving to draw the harrow once or twice acroſs the furrows, to break the clods and cover the ſeeds; but at the other times to harrow in the ſame direction as the furrows, leſt the ſtubble ſhould be raiſed on the ſurface. But it would be better huſbandry to plough in the ſtubble in autumn, that it may rot in winter, and to give the land another ploughing, and a good harrowing, juſt before the oats are ſown. This will render the ground finer, and fit

to receive the grain, the increaſed produce of which will amply repay the extraordinary tillage of tillage.

When oats, as it frequently happens, are ſown upon a lay, or on ground new broken up, after only one ploughing, which is given in January, when the earth is moiſt, to turn down the ſward; the harrowing muſt be in the ſame direction as the furrows, or but very little acroſs, for fear of raiſing the turf. But this again is bad huſbandry: for the ground would be brought to a much better tilth for other grain, as a preparation for which this ſowing is chiefly intended, by giving the ſward time to rot before the oats are ſown; becauſe the roots of the graſs will prevent thoſe of the corn from ſtriking downward.

Black oats delight in a moiſter ſoil than the white ſort, and, being a hardier plant, may be ſown a month earlier. The white, which prefer a dry land, and will do well on gravel and ſand, are the beſt of all corn for ground ſubject to quick-graſs or weeds, becauſe it may be ploughed later for them, and they riſe ſooner, and top the weeds better than black oats. The weather cannot be too dry when white oats are ſown; though the ground may then be moiſter for them than barley will endure; becauſe this laſt, having a thinner coat, is ſooner chilled by imbibing the wet, which may perhaps burſt many of its veſſels;

veſſels; whereas white oats, being protected by a double huſk, better reſiſting the entering of the moiſture. Mr. Liſle, who makes theſe remarks, adds, that, according to the beſt of his obſervations, white-oaks require a rich feeding ſoil; becauſe their haulm, or ſtraw, running to a great largeneſs, cannot be ſupported without good juices and moiſture; that white chalky ground, though in never ſo good heart, will be unfruitful with white oats; and that a mixed mould, between white and red clay, of which there is a great deal in the hilly parts of Hampſhire, is not feeding enough for them. The red and the white clays, when in good heart, carry moiſture enough, and are very fit for this grain.

The common allowance of ſeed oats is four buſhels to an acre; but Mr. Miller rightly thinks three buſhels more than enough: and the uſual produce is about twenty five buſhels from an acre; though he obſerves, that he has ſometimes known more than 30 buſhels reaped from that extent of ground.

When oats are about four inches high, intelligent huſbandmen run a wooden roller over them, after a ſhower of rain has ſoftened the clods, by the breaking of which in this manner, freſh earth is laid to the roots of the plants, their tillering is conſiderably increaſed, if they have not been ſown too thick, and the ſurface of the field is ſmoothed; ſo that the

mowers, at harveſt, are able to cut cloſe to the ground, as it is very fit they ſhould, becauſe oats ſeldom grow high. Both oats and barley ſhould be carefully weeded.

Oats are ripe when the ſtraw turns yellow, the grain becomes hard, and the chaff begins to open and ſhew the ſeed. When mowed, they generally let lie ſome time for the due and rain to plump them, and make them threſh well, and, if weedy, to kill the weeds: but rain wet them much, they ſhould be carried off as ſoon as they can be got tolerably dry again, or they will ſhed; for oats may be inned the wetteſt of any corn, if the weeds among them be but dead. Even in very harveſts, when other grain is ſpoiled, this will receive little or no damage, the ſurface of its ſtraw and ears being ſo ſmooth and compact as to turn off water, and of ſo dry a nature, that, though houſes wet, they will not heat in the mow, or become mouldy, as other grains uſally do. This is a vaſt advantage in northern climates, where the harveſt is generally late, and the autumn wet.

The following letter from Mr. Lamb, on the beſt method of cultivating black oats, and recommending more frequent ploughings than are uſually afforded them, will, we are perſuaded, be acceptable to our readers.

Gentlemen,

HAving been for many years a practical farmer in the eaſtern part of the county of Eſſex, you will not, I hope, think me impertinent in troubling you on the culture of black oats, which I have very often with advantage ſown. Moſt of my neighbours prefer the white Poland oat, which may, I own, in ſome circumſtances of ſoil and ſituation, be beſt. I prefer the black oats becauſe they are hardieſt, for which reaſon they ſuit beſt with my convenience; for, as a conſiderable tract of the farm I occupy is light land, I am under a ſort of neceſſity of ſowing this ſoil early, or if a dry ſummer followed, I ſhould have no return at harveſt.

Few people allow more than one ploughing for a crop of oats; but ſuch as follow this practice are very wrong-headed; for they may aſſure themſelves, that no crop pays better for ploughing than oats; and it is on this account that I generally give my land deſigned for oats three tilths; whence I am mo-

rally certain ariſes the largeneſs of my crops, for I have ſeldom under five, oftener ſix, and very frequently ſeven quarters from an acre, throughout a field.

Your readers will not be ſurpriſed at my having good crops, when I obſerve, that I almoſt every year ſow ſome oats on a fallow that has been well dunged; and this I aver to be good huſbandry, as it abates the rankneſs of the ſoil, kills many of the weeds, and prepares the land in an excellent manner for a ſucceeding crop of ſweet wheat; but I muſt obſerve, that I always clear my land of the ſtiff oat-ſtubble before I attempt to plough for the wheat.

I ſow black oats the firſt week in February, by which time I have generally an opportunity of getting the land in proper order, for a light ſoil is ſoon wet, ſoon dry.

Let me mention once more to your readers, that it is a light ſoil, which is apt to burn a crop, that I ſow my black oats ſo early as the beginning of February; for ſhould any of them attempt to ſow them ſo early in a moiſt, cold, ſtiff ſoil, and a hard froſt ſhould follow, the young blade would, in all probability, be killed.

I muſt alſo remark, that when I ſow oats thus early, it is generally under furrow; yet I ſometimes ſow them broad coak, and plough them in.

The

The quantity of seed I, for the most part, use, is about three bushels, which I find to be enough; nay, I have sometimes from only two bushels had a good crop; but then I have been particularly careful and attentive to the goodness of the seed, without which precaution I should not, unless the season had been favourable indeed, have succeeded.

I have found it a very good way to sow first half my quantity of seed under furrow, and afterwards, sowing the remainder broad-cast, harrow it in; and this is often my practice when I sow the latter end of February, or the beginning of March.

When I sow oats after wheat, which however is not very frequently, I turn up the stubble as soon as I conveniently can after the harvest, and leave it rough through the winter. The first fine weather after Christmas, I lay it down smooth with the harrows, and immediately give it a cross ploughing.

As soon as February comes in, if it is not a hard frost, I make the land as fine as I possibly can by the harrows, raising a fine mould to the surface, which is to be the bed for the oats to lie in; for I sow my oats directly under furrow; after which I pass a moderate-sized roller over the field, and then give it a slight scratch with a pair of light harrows.

This husbandry generally produces me a crop I have no reason to complain of.

My

My chief reaſon for troubling you with this letter is, to endeavour to perſuade my brother farmers that they do not, in general, allow their oats a ſufficient number of ploughings, one being the ſtated quantity.

If they would plough twice for this crop, they would receive more than twenty ſhillings an acre for their trouble; but if they would conſult their own intereſts, and allow three ploughings, it would often make fifty pounds difference to them in a field of twenty acres: this they will, perhaps, think wonderful; but it is no leſs true.

The black oats require particularly to be ſown early, eſpecially if the farmer wiſhes to have them of a fine gloſſy ebon colour, and that the crop ſhould corn well; for if they are ſown late, and wet weather follows ſoon after ſowing, they will be apt to run all to ſtraw; and if dry weather, and the ſoil is gravelly, it is a chance but it may be burnt up.

I have found by experience, that black oats will yield a very large crop after turneps; and this I believe is ſimply owing to their being ſown in a fine tilth; for the mould cannot but be reduced to very ſmall particles if a crop of turnips has been well huſbanded, eſpecially if it is in a light ſoil.

I am, &c.

J. Lambe.

Of the Management of Rye.

RYE, a ſpecies of corn, greatly cultivated in the northern parts of England.

Mr. Miller is of opinion that all the rye ſown in England is the ſame ſpecies, though diſtinguiſhed by farmers into two varieties of winter and ſpring rye, as he has not been able, by the moſt ſedulous experience, to find difference.

The winter Rye, which has the largeſt grain, is what the generality of farmers cultivate. It is ſown in autumn, or at the ſame time as wheat; and in many of our northern countries, as well as in Wales, they are often mixed and ſown together; though as Mr. Miller rightly obſerves, this muſt be very bad huſbandry, becauſe the rye will ripen ſooner than the wheat; ſo that if the latter be ſuffered to ſtand till fully ripe, the grain of

of the former will ſhed; nor can this be practiſed where the people are not accuſtomed to eat rye-bread: for though ſome account it good when mixed, it is ſo very clammy that few who have been uſed to wheaten bread will ever reliſh it.

Rye is generally ſown on poor, lime-ſtone, dry, gravelly, or ſandy ſoils, where wheat will not thrive, and in ſuch places it does very well. The ground ſhould be dry when it is ſown: for if much rain falls, even after the ſowing, before the rye is come up, it often rots in the earth. It indeed riſes in a much ſhorter time than wheat.

When ſown upon light land, it ripens much earlier than a cold ſtiff ground, and by continuing to ſow it in ſuch a ſoil during two or three years, it will be forwarded ſo much as to ripen a month earlier than that which has been long raiſed upon ſtrong cold ground. For this reaſon, thoſe who are obliged to ſow rye towards ſpring, generally provide themſelves with this early ſeed. A little ſprinkling of dung or mud, though it be but half the quantity commonly for other corn land, will if laid upon the rye ground, greatly advance the crop. The uſual allowance is two buſhels of ſeed to a ſtatute acre, or, if it be new broken ground, or land ſubject to worms, about a peck more; and the produce commonly

monly is about twenty bushels upon every acre.

The small rye may be sown in the spring, about the same time as oats, and usually ripens as soon as the other sort: but if the season prove wet, it is apt to run much to straw, and the grain is generally lighter than the other. The chief use of this sort is to re sow lands where the autumnal crop has failed.

This corn is ripe when its straw turns yellow, its ear hangs, and its grain is hard. It is not very apt to shed; and therefore, if it be weedy, (though this ought never to be the case with any corn, it should be let lie upon the ground, or gavel, as some call it, a week or ten days after it is cut, if the weeds do not dry sooner, before it be bound up; for otherwise those weeds will give in the barn, make the rye not thresh well, and render it musty. But as this grain will grow in the ear sooner than any other, if it be wet, particular care must be taken, especially if rain comes on, to turn it at least once in two or three days, and lay the ears upon the stubble, as high above the ground as can be. This will help to preserve it from hurtful moisture: but if it be cut in perfectly dry weather, and without weeds, it may be bouted as it is reaped.

Rye, is very excellent for giving a good skin to horses, as it is loosening, and carries off foul humours, which hard exercise and bad

bad provender may have left in them. It is alſo a moſt excellent ſeed for geeſe. I cannot ſay the ſame with reſpect to hogs, for which animal it ſeems to me to be too looſening; inſomuch that I have given a great deal of it to them when put up to feed, both dry and boiled, without perceiving in their fleſh.

Rye is very generally liked for bread by the people of countries in which it grows commonly, and who are therefore much uſed to it; inſomuch, that many of them ſcruple not to prefer it to wheat, the bread of which preſently grows dry. They are, however, numbers of perſons, who, though uſed to it from their youth, can never reliſh it. Some object to the tourneſs of it when made with leven, and others to the natural ſweetneſs of the grain, which is diſagreeable, eſpecially with the ſavourineſs of fleſh meat; and, indeed, I am myſelf of this number.

I agree intirely with Mr. Miller, that it muſt be very bad huſbandry to ſow wheat and rye together, as the latter will ripen much earlier than the former, and ſeveral obvious inconveniences enſue. They who like meſlin, may mix them to their mind when carried to the mill, without any inconvenience.

Many incidents may hinder the ſowing of rye in autumn; the ground ſhould, by all means, be dry, when it is ſown, and heavy rains after it is ſown may rot it in the ground

before

before it come up: ſo that the ſowing of ſpring-rye becomes an object well deſerving our attention: and all the directions and cautions which can be given about it ſhould be nicely attended to.

As dryneſs is eſſential to the ſucceſs of rye, it ſeems adviſeable to delay the ſowing of ſpring-rye as long as can be, with any proſpect of ſucceſs, rather than not have both the ground dry for ſowing, and the ſucceeding weather for ſome time after ſowing likely to be fair; eſpecially as rye ſoon rots in the ground, if wet.

The ground deſigned to be ſown with rye in ſpring, ſhould be laid in winter with high ridges, and have good drains to carry off the water, that it may be as dry as poſſible when ſown.

Hot manures ſhould be uſed, and particularly lime, which will bring on a ſpeedy ſhooting. It was long a prevailing opinion, that lime was not a proper manure for the ſoil in which the lime-ſtone was found; but experience has ſhewn the vanity of this notion.

Rolling may be more neceſſary to ſettle the earth about the roots of plants of rye ſown in ſpring than in autumn; for the winter froſts will have broke down the clods unto the roots of the autumn-ſown rye, though indeed the rains may have partly waſhed that earth away.

A moderate fowing of foot, after the plants are come up and rolled, may be of great advantage. *Muſeum Ruſticum*, vol. IV. page 225.

The ſame ingenious gentleman has obliged the world with the following obſervations on a courſe of crops; by which it appears that rye-land, is nearly, if not quite, as valuable as wheat-land.

The lands of Nether Dunsforth, in the weſt riding of this county, are in general, a ſtrong clay, and bear good wheat. The lands at Helperby, a few miles diſtant, a good black loam, which bear good rye, but, on repeated trials, prove too light for wheat, as the moſt ſenſible farmers there affirm. Be this as it will, the lands let at the ſame prices in both places, viz. at ten ſhillings per acre; and we ſhall ſee that it may be as well afforded, according to the courſe of their crops, &c. which I learned only lately from two ſenſible farmers, one of them living at the former place, on an eſtate of my father's, and the other at the latter, and deſirous to ſucceed his companion as tenant to my father.

At Helperby they have a crop of rye, then a crop of barley, then a crop of peas, then another crop of barley, and ſo round again; and they obſerve that the peas ſo mellow the ground, that their fourth crop is better than their ſecond.

To

To bring these crops to a fair comparison, we must say, that the Dunsforthmen have five crops of wheat, and five of blendings, in fifteen years; and that the Helperby men have three crops of rye, three crops of peas, and six crops of barley, in the same space.

To estimate the real value of these crops, without too much nicety, we may suppose that the wheat is, one year with another, worth one shilling and six-pence per bushel more than the rye; and that there are twenty-five bushels of wheat and thirty of rye on an acre. We will take the medium price of wheat to be four shillings and six-pence, and of rye three shillings.

An acre's crop of wheat then would be - -	5	12	6
Ditto of rye - -	4	10	0
Difference - -	1	2	6
But as the straw of rye is known to be much more valuable, and of greater quantity, and the expence of manure and seed to be less, we may safely deduct -	0	10	0
So that the real difference of profit on one acre will be -	0	12	6

The crops of blendings and of peas may be reasonably reckoned as on a par.

The difference of profit then betwixt three crops of wheat and blendings on one side, and three crops of rye and peas on the other will be - - - 17 6

We are now gentlemen to consider the difference between the two remaining crops of wheat and two additional crops of blendings on one side, and the six crops of barley on the other.

Supposing the charge of both sides to be the same, (and there will be no considerable difference) the two crops of wheat will be worth - - 11 5 0

A crop of blendings usually falls betwixt fifteen and twenty bushels to the acre, and the medium price is three shillings per bubushel: the value of a crop then, at an average will be seventeen bushels and a half, at three shillings; that is two pounds twelve shillings and sixpence, and of two crops of an acre - - 5 5 0

A crop of barley is usually thirty two bushels to the acre at the place in question; and the m dium price per quarter is one pound: the value there-

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fore of the corn of an acre of barley is four pounds, or of six crops - - - 24 0 0

But the straw of barley is so valuable that it may be reckoned to exceed the expence of reaping by at least five shillings; that is for six crops - - - 1 10 0

I did not enquire whether the men of Helperby sow clover with their fourth crop; but they certainly may, and reap one good crop in the fallow year, and turn in all their stock for a fortnight or three weeks to feed it down, and have time enough to plough in the roots of the the clover, and the manure made by the cattle which eat it, and get their fallow into order; so that we cannot reckon less profit hence than one pound per acre: that is, for three crops - - - 3 0 0

Nay, when one considers, that rye is, of choice, sown late in this country, we may allow a second crop of clover and feeding, which cannot be worth less than fifteen shillings per acre; that is, for three crops - - 2 5 0

The whole account then will ſtand as follows.

For the wheat growers.

By balance of three crops of wheat againſt ditto of rye, and two of blendings againſt ditto of peas	1	17	6
By two crops of wheat -	11	5	0
By ditto of blendings -	5	5	0
Total	18	7	6

For the rye-growers.

By the corn of ſix crops of barley	24	0	0
By the ſtraw - -	1	10	0
By clover - - -	5	5	0
Total	30	15	0
Balance of the fifteen years in favour of the latter -	12	7	6

That is, for one year on one acre, ſixteen ſhillings and ſix-pence; that is a profit more than the rent of the ground, and half as much again above the profit of the wheat-grower.

Some experienced people may think that I have thrown more advantage into the ſcale of the rye-growers than I ought; yet, on the ſtricteſt review, I cannot think ſo; but that on the contrary, I have reckoned their advantages too low. I am ſure I am not partial, for I own a wheat crop my favourite

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one (I have a natural diſlike to rye bread) though I own the rye ground more advantageous to the farmer. Let us review my account.

Am I thought to deduct too much, when I take off ten ſhillings for the ſaving in ſeed, and gaining in ſtraw, of rye? ſurely I ought not; for, as wheat is conſiderably larger than rye, fewer grains fill the buſhel, conſequently more ſhould be allowed to an equal portion of land: and farmers who ſow nine pecks of rye, ſow twelve of wheat to the acre. Now the price of the former according to the reaſonable ſtate above, is ſix ſhillings and nine pence; of the latter thirteen ſhillings and ſixpence; conſequently the ſaving, ſeven ſhillings and three pence. And whoever conſiders the great length and fineneſs of rye-ſtraw than that of wheat muſt think two ſhillings and nine-pence per acre a very ſmall allowance for it.

It is thought that more labour in ploughing attends the production of twelve crops than ten. Be it conſidered, rye land is lighter and therefore much eaſier ploughed than wheat land; and that in the courſe of this wheat husbandry, the fallow is not to be ſtirred as often as it would be to prepare it for the additional crops; and that, the oftener any ground is ſtirred, the more eaſily it is ſtirred; and that the crops of peaſe and clo-

ver mellow the ground, and make it more eaſily ſtirred for the ſowing down with hard corn; alſo that it lies unſtirred every fourth year, from the ſowing down of barley to the eating off the clover, about fifteen months. From all which conſiderations it ſeems moſt evident, that the ſame team and ploughman will, with more eaſe, work the ſame quantity of rye land, to produce its twelve crops of corn and the clover too, than they could wheat land to produce the ten crops.

Am I imagined to reckon the expences of ſeed and manure for two crops of wheat and two of blendings too high, when I put them on a par with thoſe of ſix crops of barley? As this ſeems the moſt exceptionable, I will ſtate the matter ſomewhat more particularly.

The ſeed for wheat is three buſhels to an acre, which, at four ſhillings and ſix-pence, comes to thirteen ſhillings and ſix-pence; for two crops, to one pound ſeven ſhillings. The ſeed for blendings is four buſhels to an acre, which, at three ſhillings the buſhel, comes to twelve ſhillings per acre; for the two crops, to one pound four ſhillings. The ſeed for the four crops coſts then two pounds eleven ſhillings.

Four ubſhels of barley ſow an acre, and, at two ſhillings and ſix-pence per buſhel, come to ten ſhilling per acre, or for the four crops to three pounds. The difference then

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in the value of ſeed in the two methods, is only nine ſhillings. Now, let it be conſidered, that the ground is prepared, as to manure, by the rye-crop for the former barley crop, and by the crop of peas for the latter barley-crop, ſo that nothing need be charged on this account; whereas, to prepare the ground for the two crops of wheat, the farmer muſt be at great expence in manure, either in burning or (which is generally much worſe) buying of lime, and leading it, or at leaſt in leading his own or bought dung; ſo that the nine ſhillings ſaved in the ſeed will go a very little way in this great expence. Beſides, the clover ſo opens and mellows the ground, and the dung occaſioned by eating of it, either at home or in the field, ſo enriches the ſoil, that much, if not all the expence of manure for a crop of rye is ſaved; and this allows the farmer to lay his manure, otherwiſe needleſs, unto his barley ground, and improves it for that crop, and the ſucceeding crops of clover and rye too; and on this account great deductions ſhould be made from the expence of the three rye crops compared with the three of wheat at the head of this account; ſo that I am clearly of opinion, that, inſtead of there being any balance therein in favour of the wheat growers, it would fall conſiderably on the ſide of the rye growers.

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In the laſt place, am I ſuppoſed to take the quantity of wheat on an acre too low? I anſwer, I take it from the courſe of the country where the compariſon is made; and if greater crops are reaped elſewhere of wheat, ſo are there alſo of rye.

I was lately aſſured, by a farmer on the eſtate adjoining to this, that he has frequently reaped fifty five buſhels of rye off an acre, and his father has reaped as much or more off the land in this eſtate. I am fully perſuaded it will be found, on enquiry, that one ſixth in quantity, as I ſtate it, is too little in favour of rye. A ſtock of good rye uſually yields five pecks, or more, while a good ſtock of wheat, whoſe ſtalks are thicker, and bed leſs cloſe, and make much leſs bands, ſeldom yields ſo much as a buſhel; ſo that, if there be an equal number of ſtocks, as large as can be made, of each ſort, on an acre, here will be one fifth, or ſix buſhels in thirty more of rye than wheat, cæt. par. as philoſophers ſpeak. *Muſeum Ruſticum*, vol. IV. pag. 345.

Method of ſtocking a farm of one hundred acres of paſture with cattle to fat for the markets. The common allowance for ſummer feed, is one beaſt to an acre and half; ſo to an hundred acres there muſt be ſixty-ſix beaſts, either ſteers, heifers or bullocks, to be bought in any time from the beginning of April to the end

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of may, and not later. Theſe cattle ſhould be ſuch as will anſwer the weight of ſeventy-five or eighty ſtone; each beaſt, when they are fat, at eight pounds each ſtone. The time allowed for fatting theſe cattle is four months, and the firſt price of them is about four pounds per beaſt,

While theſe are ſold off, the ground will lye idle till October, and then you muſt ſtock it with ſmall cattle, ſuch as are brought from Scotland or Wales, about that time of the year, to each of theſe you muſt allow three acres for winter feed; beſides now and then a little hay in hard weather, to keep them from licking themſelves, which they apt to do as ſoon as they riſe from laire to their hurt, by bruiſing themſelves, which makes them waſte and grow lean. Theſe will be fit for ſale about February, and will then weigh about forty ſtone a piece. They are bought in about forty ſhillings a head; and the number for one hundred acres is thirty-three.

At the ſame time, to follow theſe ſmall cattle, buy in ſheep, to eat up the remaining part of the herbage, allowing two large wethers to each acre, which muſt be bought in very forward to fat; for if we take them from the fold, or the falloms, theſe paſtures will give them the rot. In the purchaſe of theſe it is not pretended that our paſture ſhould

fat

fat them, but only keep them till they will ſell well at market, which will be the Febru- following. Of theſe muſt be two hundred, to be bought in for about fourteen pounds per ſcore.

You muſt obſerve, that all your paſtures ſhould be clear of all cattle, by the beginning of March or the middle of that month at fartheſt, according as the ſeaſon is forwarder or latter; for if the cattle were left long enough to nip or bite the young ſpring of the grais, it would weaken and ſpoil the ſummer crop.

PART II.

The nature and cure of every diſeaſe incident to cattle, with the moſt approved receipts.

To find, in buying cattle, if they are ſound.

VIEW them well; gripe them on the back, or withers behind the fore ſhoulders, and if they wince at griping you have undoubted reaſon to ſuſpect a malady: but be more curious, obſerve if they tremble and ſeem to ſhy much, if they do, you may depend that they are not ſound. If you buy lean beaſts for fattening, be careful that they are young; for if old they will prove of little profit. To know this, obſerve carefully if they are ſmooth, and lick themſelves often, and if they want not their teeth; that their hides are thick and firm, ſhoulders and ribs broad; if the hair of their tail and pizzle be broken, they will not feed kindly, but rather dwindle than increaſe in fleſh and fat.

How to know the age of cattle. The age of theſe animals is known by the teeth and horns.

At the end of ten months they ſhed their fore teeth; and in three years all the inciſive teeth are renewed. Theſe teeth are at firſt equal, long and pretty white; but as the creatures advance in years, they wear, become unequal and black. They alſo ſhed their horns at the end of three years, and theſe alſo are replaced by other horns, which like the ſecond teeth continue. The manner of the growth of theſe horns is not uniform, nor the ſhooting of them equal. The firſt year, that is fourth year of the creatures age, two ſmall pointed horns make their appearance, neatly formed, ſmooth, and towards the head terminated by a kind of button. The following year this button moves from the head, being impelled by a horny cylinder, which lengthening in the ſame manner, is alſo terminated by another button and ſo on; for the horns continue growing as long as the creature lives. Theſe buttons become annual joints, which are eaſily diſtinguiſhed in the horn, and by which the age of the creature may be eaſily known; counting three years for the point of the horn, and one for each of the joints.

Of ordering cattle. The proper time for bringing the heifer to the bull is at about 3 years old, or rather upwards; at which time ſhe is ſtrong and luſty, and her growth will not be impeded, nor that of the calf, to rear for a good and profitable breed.

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The season of the year is generally about May, or the beginning of June; the season being warm, will comfort her, and increase the calf within her; and from this time for eight years to come, she may take the bull with a prospect of increase; but in other cases till twelve; after which she will be good for little. The general symptoms of her wanting the bull may be known by her claws swelling, and a continual lowing, with many other signs, which country people cannot be ignorant of; as scenting, snuffing up of the wind, &c. In the choice of your bull let him be of a fine red, strong limb'd, and well proportioned, not exceeding six years old, but rather under.

If you find that the bull declines his suit and the heifer not very forward, you may provoke them by the following method.

Take the herb called hart's tail, which burn under their noses; or rub the cows sheath and bull's cods with nettles, which will cause a heat and provoke them presently to it. When she has twice or thrice served, drive her about for some time that she may retain the seed within her, keeping her as much as may be from briars and thorns: be careful that she drinks not of muddy water, keeping of her tolerably high; and be sure to house her in wet and boisterous weather, and you may expect a very fair calf in the kindly season.

Of ordering the calf. The calf being brought forth, feel in its mouth if their be any bladders or foreneſs to hinder its ſucking, which is often the caſe, and may be perceived by its mumbling the teat, and ſeeming to ſuck with pain. If you find any impediment under its tongue, or in any part of the mouth, take your ſciſſars and clip the place, rubbing it well with honey and ſalt; but if the bliſters ſhould appear in the roof of the mouth then uſe honey and allom. If the calf ſhould happen to die, or be weakly, and you would willingly put a ſtrange one in its place, let it not reſt with her all night till better acquainted; for by winding of it ſhe will diſcover the impoſture: but when ſhe has well licked it in the day time, ſhe will in ſhort time receive it kindly. At the end of two months or ten weeks at fartheſt 'tis neceſſary to wean, teaching it to feed on milk, oatmeal, duſt of flower or bran; which is eaſily done by dabbling in it and putting your fingers in their mouths; new whey, is good for them wherein parſley roots have been boiled or infuſed; and by degrees you may bring them to eat ſweet hay or graſs, by giving them a little at a time; and if the weather prove warm you may turn them out in a paſture, giving them milk twice a day; and at the end of three months he will be capable of ſhifting for himſelf.

If

If your calf ſhould prove louſy, which is often the caſe, and hinders him from thriving, rub hard againſt the hair, and anoint him with ruſty bacon or waſte ſalt butter, ſprinkling him at the ſame time with aſhes of fern; and it will not only kill them, but prevent his being viſited for the future.

If a bull calf, geld him in the wane of the moon, but not in too cold a ſeaſon; anoint the wound after caſtration with ſalt butter, and it will heal the ſooner laying aſhes of the vine over that mingled with litharge; and if they ſwell much anoint the part with linſeed oil, and then tar, which will ſecure them from flies and putrefaction: be careful to put them where they cannot leap about; as it often occaſions diſeaſes, and ſometimes death: in five or ſix days the parts will cement, and the danger be moſtly over.

Young calves are apt to be attacked by inſects, which diſturb and torment them, and, at the ſame time, prevent their fattening. In order to preſerve them from theſe inſects, and even cure them when they are attacked, it will be proper to prepare an ointment of melted hogs-lard and quickſilver, well rubbed together in a marble or iron mortar. Spread this ointment upon a linen cloth, which wrap up in three folds, and ſtitch it for a collar to the calves. It will not only cure them, but alſo diſperſe the inſects.

There is no better nouriſhment for young calves, than vetches ſoaked in water till they ſwell; but obſerve to ſteep no more than will ſerve them for once; becauſe when they continue moiſt for any conſiderable time, they are apt to grow ſour, and would then do them more harm than good.

The way to fatten cattle. Point out for their uſe an agreeable and pleaſant paſture well watered; and as the ſeaſon is, give them chaff, rapes, or grains, with the duſtings of meal; ſometimes chopped peaſe-haulms, offal cabbage, turnip, or colewort leaves. If at any time you perceive their ſtomachs fail, and they do not feed kindly, boil colwort leaves in vinegar or ſtale beer grounds, drench them with it, and it will recover their appetites ſo as to feed roundly. Water them twice a day at the leaſt in winter, but warm their water, ſifting ſome bran in to ſoften it; and to make them healthy, bruiſe cummin and anniſeeds, which boil in their water once in four or five days.

If a beaſt tire ſoon it portends a weakneſs and poverty of body, and will be followed by ſome mortal diſeaſe if not taken proper care of in due time.

To prevent which, and bring him to his appetite, take a ſmall handful of ſalt and ſome white wine vinegar, with which rub his mouth and tongue very well, then put

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the remaining part down his throat and he will feed presently.

Sorbaiting, which commonly comes by travelling, and greatly impedes his journey, causing a great lameness and fretting; to cure which you must boil honey and hog's grease in white wine, till it come to a consistence equal with pap, lay it on his foot by way of poultice for three days, and it will asswage the pain.

The *foul* betwixt the claws of a beast comes by sand, stub or filth, which is not only very painful to them in the pasture, but a great hinderance to their travelling; to cure which, cast your beast and make fast his feet with proper implements, (which every breeder ought to keep by him) then with a sharp knife pare off what is dead, and rub the place very much to make it bleed, then take dry verdigrease and bruise it small, drying off the blood that shall issue from the wound, dip it in Hog's grease which bind on for one night, keeping it dry it will be well; but perchance a wart should grow betwixt the claws or on the heel, you must pare it with a knife letting it bleed very well, then take a hot iron, and sear it; after which take tar, yellow wax and butter melted together on a slow fire, lay it on with a tent of flax, binding it on with a linnen cloth, and it will be well forthwith.

Of beasts that cannot piss without pain. This disease

diſeaſe comes by two much heat, or by drinking ſandy water, which gathering together ſtops the paſſage of the bladder, not unlike the gravel in a human body; it ſometimes happens by bruiſed and clotted blood ſtopping the urinary paſſage as before obſerved: The beſt and moſt efficacious remedy for which is; take cummin, parſley, and water-roſe ſeeds, or the herb itſelf, a ſmall quantity, to which add about one ounce of muſtard ſeed, ſteep them in white wine vinegar four hours at leaſt, put a pint of white wine to the powders after they are ſteeped, and give to the beaſt milk warm; if this fail you, take of bay berries, butchers broom, ſetwell, parſley, ſow thiſtle, lettice, penny-royal, and red nettles, bruiſe them in a little white wine vinegar, then ſtrain them, adding a pint of white wine, with ſome anis and carraway ſeeds bruiſed, give it as before.

For the ſwelling foul. This diſeaſe proceeds from blood and watery rheum, which falling into the legs, cauſes a ſwelling ſometimes in all four.

This diſorder I have often cured myſelf, by caſting him, and making his legs faſt, after which with a ſharp knife ſlit the ſkin an inch above the heel, directly under the footlock joint; be careful to cut right up and down, or you damage the ſinews; this done, take ſome nettles, garlick and ſalt, bruiſe them together,

gether, and bind them on; but be ſure to remove them within a night and a day, and they will mend apace.

For a ſcowring that ſtinks. A diſeaſe very common amongſt cattle in general; proceeding ſometimes from the blood, and ſometimes from the diſtempers of the body, either by over heating or unwholeſome fodder, which generally breeds laxativeneſs; the ſigns are evidently diſcovered in their continual ſcowring and ſtinking; the beſt method of cure is by bleeding them in the neck-vein, then take fenugrick, turmerick, long pepper, anniſeeds, and liquoriſh, of each an equal quantity, add to theſe half a pound of allom, and a good quantity of charcoal, make all theſe into a powder; then take of rue, ſage, wild mint, parſley, ſouthernwood, wormwood, and hyſſop, of each an equal quantity, chop and grind them as ſmall as you can, putting at the ſame time a gill of white wine vinegar to them, roll all together and ſtrain the herbs, after which add a little ale to keep them moiſt, and roll them again; then ſtrain again, putting this juice with the former; take the whole contents with the abovementioned powder, and give it to the beaſt milk warm.

For the towering or hide bound in a beaſt. A poor beaſt low in fleſh is generally viſited with this diſeaſe, which is eaſily diſcovered by their hides growing faſt to their back, their

eyes

eyes ſinking in their ſockets, and grinding of their teeth; neither will they chew their cud with willingneſs, but forſake their companions, and retire to a corner of the paſture; the ſpeedieſt and beſt cure is to bleed him in the neck vein, then take a large handful of rue, hyſſop, ſage, fetherfue, ſouthernwood, and roſemary; chop and grind theſe well together, taking a quart of ſtrong ale or beer, to which put the herbs, and ſtir them well together; this done, ſtrain them as well as poſſibly you can from the ale, adding thereto long pepper, fenugrick, turmerick, anniſeeds, and liquoriſh powder; make the whole up together, and take about a tea cup full of ſallad oil, which mix with the ale and juice of the herbs; give it the beaſt milk warm; if your beaſt is very weak and far ſpent, you muſt cut him in the dew-lap, and put in ſome bear's foot, or ſpear-graſs mixed with ſalt and butter, and they will mend upon your hands.

Houſing of beaſt. Be careful to keep their ſtalls dry and hard under foot, being well paved with ſtone ſloaping, that the urine may run away, having proper conveniences for carrying it out of the houſe; it is neceſſary to have window holes or doors to let in the freſh air, at all times the ſeaſon will admit of, by which means they will ſoon become fat.

For a dry cough or hoarſeneſs in a beaſt. This hoarſeneſs in either ox or cow ſhould be carefully looked to, or in proceſs of time it will

will grow to a worſe diſeaſe, therefore it is neceſſary to prevent it in time, for which I preſcribe the following medecine take the diſtilled water of hyſſop, or elſe a decoction of hyſſop and mint, together with the juice of leeks, and adminiſter it with the oil of olives; this is a certain and ſpeedy cure; but if the cough or hoarſeneſs be not over violent, you may give them tar with honey water, and it will certainly help them.

A purge for cattle. It is highly neceſſary to purge cattle in the ſpring before they go to graſs; for which purpoſe give them cinnamon or hartſhorn, with common ſalt boiled together; you may alſo give them tar, butter, honey, ſugar candy, and the powder of laurel leaves, either in balls or warm water, and after they have been at graſs about twenty days, bleed them in the neck vein, giving them at the ſame time a pint of warm ale: this is called the preſervation of health for any cattle, that is ready to feed or go to buſineſs.

For the ſcab. Take ſome of his ſtale or urine, mix therewith ſome ſalt butter, white wine vinegar, ſallad oil, and brimſtone, blend theſe well together, and rubbing him therewith againſt the hair, he will mend ſpeedily.

For the fever in a beaſt. A fever may be taken in the ſummer by over driving or hard labour; by drinking cold water when hot, which will cauſe a ſhaking on them at firſt, and produce

produce a fever, which is of dangerous conſequence; the ſymptoms are an extreme heat, and their ſweating upon the back to a great degree; the beſt way of managing them in this diſorder, is to cut ſome freſh graſs, giving them lettuce therein to cool their bodies, and the next morning let them blood in the neck vein, then give him the juice of purſlain, blended with gum tragant, anniſeeds, and the powder of damaſk roſes, put theſe ingredients into a quart of ſtrong ale, ſweetning it with honey; give it him three mornings one after the other luke warm; keep warm the beaſt, and by God's aſſiſtance he will mend.

To keep an ox ſound. The beſt method to keep an ox or cow ſound, is to waſh his mouth with his own ſtale, and white wine vinegar, once in about twelve days or ſo, which will bring a great deal of phlegm and water from his ſtomach; under which operation he will hang his ears and weep much for a ſhort time; after which he will eat very heartily and thrive.

To make a cow take bull by milk. Your cow being in good caſe, and you would have her take bull, if you have not of your own you you muſt borrow of your neighbour about a quart of milk from the cow that is bulling, which give to the former, letting her go with the bull, and in ſix or eight days ſhe will be forward to receive the bull's embraces.

To

To breed milk in a cow. Your cow having a calf that is extremely weak and poor, or calved before her time, and not milk ſufficient to ſupport her charge, you muſt give her good ſtore of malt, and milk warm. You may alſo give her every morning and evening a quart of ale made in a poſſet, from which be ſure to take the curd. Put therein anniſeeds, cummin, lettuce, and coriander ſeeds, all made into a powder; blend them well with the poſſet, and let them ſtand three hours; give unto the beaſt a potion of it ſome four or five days ſucceſſively, and by often ſtroaking her teats, her milk will encreaſe exceedingly.

To kill worms in ox, cow, or calf. Pound ſavin and black ſoap, which blend with wort, and give it the beaſt, being careful to keep them full three hours afterwards without food.

To prevent flies from troubling cattle. Take a gallon of linſeed oil, to which put a pound of bay berries, ſeeth them together, and anoint the beaſt therewith, and the flies ſhall not endure it, but ſhun him.

To recover a loſt appetite in a beaſt. If a beaſt by hard labour has loſt his appetite, and you would willingly recover it ſpeedily, take ſix or more raw eggs (agreeable to the ſize of your beaſt) which beat up with honey, ſalt and vinegar. You may alſo give them hairhound dried and beaten into powder with their drink.

But if the palate of the mouth ſhould ſwell, launce it with a ſharp knife, ſo as to let the blood and water emit, which rub with common ſalt, he will do well.

Cud or quid loſt, how to recover it. It often happens that a beaſt will loſe his quid by chance; and at other times by mourning or bad keep: to recover which, take ſtale leaven of rye bread and ſalt, which beat in a mortar with man's urine and baulm; make this into a large ball and adminiſter it to the beaſt.

For the cramp in a beaſt. Rub the knees, legs and thighes, with ſalt and oil, and he ſhall become leapſome.

Lungs growing, a remedy. As the lungs of a beaſt are ſubject to extreme ſixckneſs, or floppage, which is eaſily diſcovered in their coughing and ſtraining, and by hanging out their tongues afterwards, to elevate which grievance you would do well to take a pint of tanners ooze, to which add a pint of new milk, one ounce of brown ſugar candy, a quartern of ſallad oil, and two ſpoonfuls of tar, which give to the beaſt at twice, and he will recover upon it.

For the withering of a cow. Take coleworts, mallows, maidenhair, mugwort, betony, and ariſtolochia; boil all theſe in water, which give to the beaſt moderately warm. You may alſo take ariſtolochia, myrrh and pepper, bruiſe them together, and adminiſter them in white wine,

wine, or ſtrong ale, milk warm, which will conſtrain her to caſt her latter burthen or dead calf, and become whole.

To cure the ſwelling of a bull or ox's pizzle. Take holyock, houſeleek, and a little plantain, ſtamp them together, and anoint twice a day; but if he be very ſore you muſt caſt him, and waſh his ſheath and pizzle with white wine vinegar very well: and if perchance there be any cancerous holes in the grievance, add thereto ſome burnt allum and waſh therewith: after three or four times waſhing you will find a ſpeedy amendment.

An excellent receipt for the ſwelling of an ox's cod. Anoint it with ſweet ſeam at firſt three times a day; but ſhould it fail, take wall earth, which diſſolve in vinegar, and the dung of the animal, with which bathe him.

For the ſpedd in the hinder parts. This diſeaſe is properly called the ſpeed; as it either mendeth or ends in the ſpace of three days, owing entirely to the foulneſs of blood, and is contageous amongſt young cattle from one year to three. It will alſo affect them if neglected to be blooded. For the cure of which give them white wine and ſalt well mingled togther; bleed them in the tail freely; then caſt them, and with a ſharp knife make an inciſion, full two inches long, in the inſide part of the hinder legs, above the cavity of of the gambriel: you muſt in this operation

be very careful to make your inciſion right up and down, leſt you cut a ſinue or vein. This done, make room with your finger, and in the orifice put in ſome ſalt, ſpear graſs, butter, giving them inwardly a quart of ale; to which add ſome red ſage, featherfear, and ſpurge, ground fine and made lukewarm It would not be adviſeable to drive them above twelve hours; for if they are taken care of while they can ſtand, you may nearly depend on the cure.

For the worm in the tail. This diſeaſe is ſoon perceived, as the hair will ſoon off where the worm lieth, and moſt certainly the joints are eaten aſunder. To cure which, be careful to ſlit the ſkin on the under ſide, above the decayed joiut, againſt the vein, which prick that it bleed freely; then take butter, ſalt and garlick, which bind on and it will mend; you may alſo ſlit their gums againſt every tooth, and they will grow faſt.

A remedy for ſore eyes, in bull, ox, cow or calf. Take mutton bones and burn them well pound 'em to powder, and ſearſe them very well; then take burnt allom and tutty, with white ſugarcandy and the juice of ivy, and it will help them that have a fleam which came by a chaff or ſtroke. Alſo take the marrow of a gooſe-wing, and it will help 'em; alſo take white ſalt and burn it in a dock, or wet cloth; then take the middle core of it, and mix it with

with the juice of ſalandine, or drop juice of celandine or pimpernel into it.

There's alſo a diſeaſe on the eyes, coming by blood, and breedeth choler and blindneſs: ſometimes the beaſt ſeeth a little, and ſometimes not at all.

You muſt firſt cord 'em in the neck, and bleed 'em in the temples under the eyes: let 'em bleed very well, and put in ſome burnt allom and live honey mixed together every day, and they will mend for certain. *Approv'd.*

For the garget in the head. For the garget in the head, you muſt find it out by the ſwelling in their eyes and lips; their eyes will be ſwelled up, and the face and cheeks will be ſwelled: You muſt look into their mouths for blifters on their tongues; and if there be any, you muſt break them; but if the tongue be ſwelled, you muſt pull it forth, and look under it: if there be no blifters, then you muſt take your knife and ſlit it underneath the tongue an inch long, and let out the poiſon, and waſh it with vinegar for the preſent, and within an an hour give three pennyworth of powder of fenugreek, turmerik, long pepper, liquorice-powder, and anniſeeds, in a quart of ſtronge ale or beer luke-warm. But to prevent this, bleed 'em well ſpring and fall; and when you do ſo, give to every beaſt ſome rue in a pint of ale or beer, though they be never

ſo well, milk warmed and they will do well. *Approv'd of myſelf.*

For the garget in the tongue in the throat

The diſeaſe comes of blood or ſometimes of eating poiſonous graſs, as dogſband, gooſe-foot, helmet-flowers, &c. all theſe are poiſon either to beaſt or ſwine.

You muſt firſt bleed them in the neck; and if ſwelled under the jaws againſt the throat-bowl, then you muſt pull forth the tongue and cut the vein that lies under it; cut the ſkin two inches long under the tongue, length way, to let out the blood and water; then waſh the tongue with vinegar, ſalt, and burnt allom; for the outſide that is ſwelled, you muſt ſlit the hide juſt againſt the ſwelling four fingers broad every way, and therein put a good handful of ſpeargraſs, ſalt, and butter, and ſtitch ſome of the hole up again; then take a lump of the blueſt clay, as much as a muſtard-ball, and boil it with old urine, the middle green bark of your elder, and a good handful of ſalt; let them boil a quarter of an hour or more, then put in a little reaſed bacon, boil them all together till they be thick, like pap, and then bathe the beaſt's face from the ears downwards, and ſtroak it downwards towards the ſlit as hot as you can endure, the hotter the better, ſo bathe the beaſt three times a day. When the ſwelling is abated,

take

take tar, freſh butter, and bees-wax, anoint the ſore place. *Approv'd.*

And to prevent this diſeaſe, you muſt bleed 'em, and give 'em ſome rue in ſtrong ale or beer, compounded together, giving it them milk-warm.

The murrain in a beaſt. This diſeaſe comes ſeveral ways; firſt from the rankneſs of blood, or feeding; the corruption of the air, or the infection of other cattle. You may find this diſeaſe by their carriage, that is, they will foam at the mouth, and blow very thick and ſhort; their heart and lights will beat very ſore, and ſometimes their face and chaps ſwell, and their eyes water.

Firſt let all your beaſts blood, both ſick and ſound, and give to the ſick ſome rue, fether-few, ſage, hyſſop, thime, marjoram, marigolds, fennel, tanſey, lavender, and ſpike, of every one a ſmall handful; boil all the herbs in ſpring water, boil them from a gallon to a quart, and then ſtrain the liquor forth; put thereto for every beaſt a pint of ſtrong ale, and add to the juice and ale ſome long pepper, and green anniſeeds, peaſe, bay-ſalt, treacle, and liquorice powder and butter. Pound all theſe ſpices, and put them to the juice of the herbs, and ſo give to the ſick a full pint, but to the ſound half a pint. *Approv'd.*

For madneſs in the head of a bull, ox, or cow. madneſs in the head, proceedeth from blood.

Firſt

First cord them in the neck, let them blood in the temples, under the eyes, and in the ears: let them bleed very well, and give them fennugreek, turmerick, long pepper, and green anniseeds, all alike in portions, and but three pennyworth in the whole, with the juice of rue, or else very small grains, put all together; give it them in a quart of strong ale or beer milk-warm, but give one half of the thinest in at their nostrils, the rest at their mouth.

This disease is easily found, for they will reel as they go, and set their head into their neck, or against a wall or a gate, and two men can hardly stir them.

For the garget in the maw. You may perceive it by their drooping and heaviness in their head, and hanging down of their head and ears, their heart will beat very sore, and many times they will be very costive in their body, and will not eat any thing, but sit continually.

Let them blood in the neck vein, and let bleed very well; then draw your cord and take rue, plantane, southernwood, wormwood, shepherd's-purse, smallage, colewort, if you can conveniently get them, of each half a handful; bruise them very small; take a handful of hen's dung, and lay it in steep in a pint of old wash eight hours, and then strain forth the hens-dung, and put the herbs and

wash

wash together; then put a quart of strong ale to the herbs and wash, and set them on the fire till one half is boiled away; then strain them over again, and put in an ounce of treacle, one spoonful of the juice of garlick, and some anniseeds, together with some liquorice powder: blend all together, and give to the beast milk-warm; it is special good for the murrain, or for any garget or long sought whatever. *Approved.*

For the yellows in the whole body. This disease is a forerunner of all diseases, and is the soonest found out; for they will be yellow in the tale end, nay sometimes all over the body.

You must bleed them in the ears and in the tail very well, and put some salt in their ears, but rub them betwixt your hands when they are blooded, to make them bleed; and then give two handfuls of salt down their throat dry over-night, and in the morning give them fenugreek, turmerick, long pepper, anniseeds and liquorice, but two-pence in all: the whole made into powder, and given in a quart of ale milk-warm, is very good for the overflowing of the gall. *Approved.*

A good receipt for the water murrain. This disease cometh of rankness of blood, and chiefly takes those that are young, betwixt one year old and three. This disease is easy to find out, for they swell on the back and both sides

ſides the chine, and if they have not preſent help will die: the hide will be puft up to the ſhoulder-blade on both ſides.

You muſt firſt let them blood in the neck, and give them ſome fenugreek, turmerick, long pepper, ſpikenard, all made into powder, and give it them in ale or beer, milk-warm. And for the ſwelling on the back you muſt take three handfuls of ſalt, a pint of ſpring-water, and a pint of white-wine vinegar, alſo a little allum, but pound it, and put them all together, beating it with a ſlice till it be white like milk; then bathe the ſwelled places very well, and it will dry up the rheum.

And for the preventing of this diſeaſe, bleeding is the beſt in time: alſo if they be ſwelled very much on the back, rowel them on both ſides behind the ſhoulder blade againſt the heart, and put in ſome hair to keep the holes open, and they will amend preſently.

For the riſing in the body and ſwelling behind. You muſt look in their mouths, and behind, for bliſters; if they have any, you muſt break them firſt, and then let them blood under the tail, and let them be raked with a little hand in their bodies behind for to break the bliſters in the body, and give them a quart of churn-milk, ſome ſoot off the chimney, bole armoniack, a red onion, an egg, ſhell and all, mix them together and give it, and they will mend preſently without fail, but walk them.

Of

Of SHEEP.

How to make choice of good breeders.

IF opportunity will admit, your choice ſhould be made from a county which naturally produces large ſheep, as Hertfordſhire, Lincolnſhire, &c. owing to the nature of the ſoil, whereby you will profit by the largeneſs of the carcaſe, quantity of wool in the fleece, and the enormous ſize of the pelt.

For your ram, wherein is your great dependance in promoting a good and profitable breed: obſerve he be long in body, lofty in ſtature, large bones, deep bellyed, his cods covered with wool, and his horns large, the tips of which ſhould bend from him, and above all, be careful that his palate be white, and not over moiſt; a ram with a black tongue is ever to be rejected, as his breed will be ſubject to diſeaſes.

As for ewes, the deep bellyed white, and ſhining in their wool, are eſteemed the beſt; to which add a fine long neck, with large udder and dugs, their horns ſmooth, and thin taper legs, with a large tail well covered with wool.

Having thus with judgment choſen your breed, the next thing in courſe is to procure paſture proper for the improvement of your ſtock, which ſhould be of a red mellow ſoil, not too low or wet, which is generally good

ſweet

ſweet graſs, if your ground be white, of a chalky nature, the graſs is offenſive to them, in ſo much that they will grow lean and pine away, as alſo a wet ſoil will ſubject them to the rot, which grievous malady will terminate in death.

An ewe is eſteemed to have come to her full ſtrength at two years old, at which age it is neceſſary to put them to the ram, as they will conceive ſtrong and healthy lambs, and will continue to breed for full ſeven years; nevertheleſs, theſe of the firſt year are the beſt for ſtock, and the ram that ſerves the ewes, before the bloſſom muſt be kept (e're he be permitted to leap them) full ſix weeks in good paſture, ſo as to become ſtrong and vigorous. Onions and knat graſs, ſtrewed amongſt their paſture, will provoke the ewes to take the ram the kindlier; when you imagine the ewes have conceived, take the ram from them, and put them into a quiet paſture or warm houſe, agreeable to the ſeaſon of the year, in this particular I would adviſe you to be very cautious, leſt often leaping cauſe a miſcarriage; the beſt time for covering, is generally held from May, to the middle of Auguſt, and the ordinary time of travel, is five months, or at moſt not more than 160 days, and oftentimes bring two at a time, nay, three or four is no great rarity.

They breed twice a year, at which time of yeaning

yeaning they ſhould be taken care of, leſt colds or hurts make them bring forth with difficulty, to the great prejudice of the iſſue.

Of ordering lambs after caſt, to make them grow luſty and ſtrong. If they are backward to ſuck, ſqueeze the ewe's teat, and ſpirt milk in their mouths; then open their mouths and put 'em to the teat, which if they mumble or take unwillingly, anoint their lips with hogs lard and ſweet butter, and it will make them more eager.

If the ewe chance to die, and their be no ſpare milch-ewe, it will be proper to ſuckle the lamb ſo left, through a horn; but otherwiſe it will be proper to ſhut up the ewe and lamb for a time, that they may be better acquainted, ſo the ewe will cheriſh and bring him up the better; when they grow ſtrong and wanton, ſeperate them with hurdles; and after ten days with ſoft ſtring you may tye them to little ſtakes leſt they hurt one another by puſhing, or grow lean by their unrulineſs, ever ſevering the weak from the ſtrong, when they are in the houſe, ſuckling them morning and evening, before the ewes go to paſture; and after their return ſo uſing them, till they wax ſtrong; then feed them in the houſe with clover, ſweet graſs, and bran mix'd with flower; after which, if the weather be warm, turn them out with their dams into ſweet paſture.

When you have weaned your lambs, which

if the weather be warm, may be done at seven weeks or two months ends, you must keep 'em well fed, lest they pine away, and become lean or sick, in moaning after their dams, and so lose their stomachs.

In gelding, open the cod, so conveniently that the stones may be brought forth; fasten the sinew or string it hangs by in a cleft stick, and sear it off with a convenient piece of hot iron, which will prevent bleeding, and hinder festering, if it be anointed with a little fresh butter or hogs lard, and closely put up, and kept from cold winds till the swelling, if it happens, be over This his held best to be done in the wain of the moon, for then the blood and humours decrease, or are more contracted or limited than at other times

If you would keep a ram lamb, make choice of one wherein you can perceive no blemish, but such a one as hath the marks I have mention'd in rams before, in *tongue*, *wool*, and other things which will make an excellent breeder.

And thus having given you an insight in o things necessary to be known relating to rams ewes, and lambs, 'tis requisite next to treat of their diseases, for their better preservation.

Of diſeaſes in rams, weathers, ewes, and lambs, with their proper remedies.

THESE creatures are by nature very tender, as all creatures bearing wool are, therefore ſpecial eare muſt be had to preſerve them, as they are ſubject to many diſeaſes; in order thereto I have taken pains to lay down the choiceſt inſtructions, as to remedies ſuitable to their ailments: and the moſt dangerous diſtempers that afflict them are the ſcurvy, ſcab, cough, rot, red-water, &c.

Theſe are occaſioned either be extream pains in the head, or by a plague cauſed by infectious airs, and are mortal for the moſt part, if timely care and remedies be not applied; therefore when you perceive any of them in this manner afflicted, the ſafeſt way to prevent the ſpreading contagion, is to ſeparate the infected from the ſound, leſt by your delay they infect the reſt. Other diſtempers there are gotten by unwholſome feeding, eating bad herbs, drinking dirty or puddle water when hot, licking up mildews, poiſonous inſects, venemous ſpumes, cobwebs or glutinous dews on the graſs, and many other accidents. But to come more nearly to particulars.

To eaſe all manner of diſeaſes in cattle. Take treacle one quarter of a pound, of hempſeed

one handful, elder-leaves, ivy-leaves, and fetherfew, about a handful of each, loam a lump as big as a large egg, as much bay-ſalt, and a little ſoot; put them in man's urine, and ſtir all well together; make it warm and give to any beaſt three ſpoonfuls of it, and after that give them a little tar; it drives away and aſſuages any pain or diſeaſe in either head or body.

For the head-ach and pains in the head Theſe pains, by ſome called the ſtaggers, are cauſed by the intemperateneſs of the air, being either too hot or too cold; and ſometimes colds taken upon heats, if not timely remedied, is apt to turn to a ſurfeit. The remedy for theſe is, to take ſix grains of aſafætida, two ſpoonfuls of the juice of ſage, in a quarter of a pint of red wine vinegar: give it when the ſheep is faſting in a drenching-horn, or any other convenient thing, as hot as may be.

For the ague in ſheep or lambs. Bleed them in the vein between the claws and keep them from drink twelve hours, then warm ſome water, and put half a pint of wine into it, with half an ounce of pepper, the flowers of comfrey, and leaves of wild tanſey well ſtamped and infuſed, then ſtrain it, and give it the ſheep or lambs to drink in a cloſe warm houſing.

Loſs of cud to reſtore. Mix powder of allom with clay, ſteep it in the urine of a man all night,

night, then take it out and make it up into little pellets, dry them in a fire ſhovel or oven, and force them down the ſheep's throat ſix or ſeven times, at diſtinct hours, giving every time after them a ſpoonful of elder-vinegar, and the cud will be reſtored.

For rheums, coughs, or catarrhs. Theſe commonly come by bad feeding or intemperateneſs of the air. To remedy them, take an ounce of powder of liquorice, as much of dill-ſeed and bayberries, a handful of the tops of vervaine; boil theſe when bruiſed in a pint of verjuice of cyder; ſtrain it; and give it faſting to the ſheep as hot as may be taken, and ſo in five mornings giving, the cure will be effected.

For St. Anthony's fire. This by many is called the wild fire, becauſe it ſuddenly ſpreads, and is often dangerous to ſheep. To remedy it, take wood ſoot two handfuls, of deers ſuet and turpentine each three ounces, juice of houſleeck one ounce; put theſe into goats milk if you have it, if not, mares milk, and boil 'em up to an ointment, ſo bathe the place afflicted, laying ſome of it on plaiſterwiſe, but give them bay ſalt in their water to drink.

For teeth-pains. Lance the gums that they may bleed, and rub them with ſalt, the juice of ſage, onion, or garlick, two or three days, and the pain will be taken away.

For ulcers or apoſthumes. Stamp lilly roots,

with rye-meal, the white of an egg, and ſtampt ground-ivy, make them into a plaiſter, with hogs laird, and lancing the ſwelling, lay on the plaiſter, and it will draw out the corruption; then put into the hole or wound a little powder of burnt allom and ſalt, ſo cover it with a plaiſter of turpentine or burgundy pitch; and after, to heal it, waſh and cleanſe it with man's urine.

For itch or ſcab. Theſe are very troubleſome and annoying to ſheep, proceeding from a ſalt humour generated by cold or wet, or too much chafing or heating.

To cure theſe, take ſoot, rather of wood than ſea-coal, the ſtalks of tobacco, and flower of brimſtone, ſteep them in man's urine twenty-four hours at leaſt, and then heat it and bathe the grieved part often with it.

For a ſhortneſs of breath, or a laſting cough. Take cummin-ſeeds, fenugreek-ſeeds, and liquorice groſly bruiſed, of each two ounces, of the herb colts-foot a handful well bruiſed, and two or three ounces of oyl of ſweet almonds; or for want of that ſallad oyl; boil them in two quarts of ſmall beer or ale, and when the liquor is ſtrained out, diſſolve an ounce of honey and the like quantity of mithridate in it, and give half a pint very warm morning and evening.

For phlegm. Take oak-leaves or polipody ſtamp'd, and give it in ale.

For

For diſtempers and blemiſh in the eyes. Diſſolve in eyebright-water of honey ſuckles or ſaladine, or of any of theſe bruiſed and infuſed in white-wine, powder of bole-armoniack and allom, with which take water and waſh the eyes afflicted often when 'tis warm, and it will take away the grievance.

For the plague or rot. Having carefully ſeparated the infected from the ſound, put them into a cloſe warm place, and waſh them with water wherein rue has been boiled, as alſo bears-foot, an herb ſo called, bawm and ſow-thiſtle; then take ſtrong vinegar and ſeeth it with ſaffron, pellitory of Spain, polipody of the oak, birth-worth roots, and buglos; add to the vinegar ſtrain'd a little aqua vitæ, and ſome ſugar candy, and give every infected ſheep a quarter of a pint in a morning for five or ſix days, not ſuffering them to eat any graſs or wet meats; and of the diſtemper has not too far ſeized and infected their vitals, this will reſtore them to health and ſoundneſs.

For ſwelling of the belly. In this caſe let blood in the tail, and give it ſome of the blood mingled with ſallad oyl, the juice of rue, and flower of brimſtone, of each one ounce; keep in motion about an hour after, 'twill leſſen the ſwelling, tho' near to burſting.

For broken bones, diſlocated joints, ſprains, or wrenches. You muſt take care firſt to bind up the bones or joint that is broken or diſlocated

cated, putting it in right order for twenty-four hours, when ſwath'd, with hog's-laird make a poultice of buglos, camomile, comfrey, and mallows well bruiſed with hog's lard and a a little aqua vitæ; lay it hot, and renew it once in two days, letting the ſheep be kept warm, and at reſt.

For the fever. It is known by the lolling out of the tongue, dulneſs of the eyes, ſhort breathing and panting. To remedy which, ſeparate the infected from the ſound, then take penny-royal a handful, ſtamp it, and ſqueeze the juice into half a pint of vinegar; infuſe a little mithridate in it, and give the ſheep warm when faſting two or three mornings: drive him gently about half an hour then houſe him.

A cure for the red-water. When you find this, look for the ſpining vein in the foot, and bleed it, then make a poultice of rue, bay-ſalt, featherfew, and butter, ſo lay it on hot.

To kill worms in the claws. Look between the claws, and you will find a head that is woolly, make a little ſlit, and draw out the wool that abounds there, which cauſes lameneſs, then mix a little tar and tallow; anoint it well, and the lameneſs will ſoon ceaſe.

For the jaundice. Burn two ounces of allom, beat it to powder, with an ounce of turmerick. Put a dram of ſaffron to them, and give this warm

warm in half a pint of man's urine, or only man's ſtale urine.

For cholcr or ſharpneſs of hūmour. If you ſee the ſkin yellow or blueiſh, theſe humours abound, and cauſe a feveriſh heat: to reduce 'em, take a handful of elder-leaves, an ounce of the ſeeds of peony, (or for want of elder-leaves, elder bark) bruiſe and ſeeth 'em, in a pint of ale, and give it warm.

To deſtroy maggots or lice in ſheep. To do this, take tar-water, the juice of burdock and briony-roots, and bath and anoint the place, and they will be effectually deſtroyed.

For violent heat. It often comes by over-driving, or being too much expoſed to the heat of the ſun, and often turns to fevers, or the plague, if not timely remedied. To do it, waſh them with warm-water wherein ſage, melilot, and lavender has been boil'd, ſo boil hyſſop and polipody in whey, and give it the ſheep to drink.

For the great and general ſcab or itch. This comes by rainy weather, miſts, fogs, or much expoſing them abroad to heats and colds, which breakings out being perceived, take the juice of rue, tar water, and gooſe-greaſe, and anoint well the place as hot as may be endur'd, having firſt clipt away the wool, then clap ſome light wool over it, or flock ſhreds, and it will peel off. But to make the ſpeedier cure let blood in the tail, and under both the

ears,

ears, and give in a glaſs of wine the juice of carduus and flower of brimſtone.

To prevent ſickneſs. In ſpring and fall, make a purge of three or four ſprigs of ſpurge laurel, a quarter of an ounce of antimony, and a little handful of dried damaſk-roſe leaves; boil them in ſpring water, and give a quarter of a pint, and if the weather be ſeaſonable, turn them from four or five hours after ſo graſing where they cannot come at any water.

To cure lambs yeaned ſick. Boil a little ſaffron and cinnamon in ſome of the milk of the dam, and give it the lamb, and it will grow healthful and ſtrong.

For the dropſy or puffing up of the ſkin. It comes by overmuch moiſture in feeding, which gets between the fleſh and ſkin, and cannot be evacuated by the pores, or ſweated out, and ſo corrupting, often cauſes the rot. To remedy this, clip off the wool cloſe behind each ſhoulder, and ſlit the ſkin there about an inch, then dip a tent of linnen cloth in oil of ſpike, and put it in, and ſo the water will be drawn thither, and evacuate by twice or thrice renewing the tent; then ſteep an ounce of regulus of antimony in a pint of ale, with a little ſpice called grains, and ſome brown ſugar. Give a quarter of a pint each morning as warm as may be, and the cauſe of the diſtemper will in a little time be evacuated.

For biting of any venomous creature. Get half a pint of aqua vitæ, bruiſe a little handful of rue, and the like quantity of ſmallage, ſimmer them over a gentle fire, lay it poultice-wiſe on the place bitten, and what you ſtrain out before you ſo apply it, give it the ſheep to drink.

A remedy upon picking up any thing that is poiſonous. Look under the tongue if you perceive the ſheep to reel or ſtagger, and you will find a bliſter; cut it and let out the water, then rub it and the mouth with urine wherein bole-armoneiack and ſage has been boiled, and give to drink half a pint of olive oil in a pint of new milk, but keep the ſheep warm ſome days.

For the running ſcab. Bleed under the tongue and tail; boil balm and turmerick finely powdered in three pints of new milk, and give a pint at a time warm; and waſh the ſores with water wherein elder and burdock-roots have been boiled and keep the beaſt twelve hours without meat.

For pains in the bowels. As this is chiefly caus'd by eating food not wholeſome, and known by the drawing up of the belly, and the ſheeps ſpurning at his belly with his hinder feet, often lying down, and ſuddenly ſtarting up again; to remedy this, you muſt take a handful of rue and ſouthernwood, boil them with an ounce of coriander-ſeeds, in ſome fair

fair water a pretty while, and then give it the ſheep warm to drink in a morning faſting.

For the canker and ringworm. If this appears either in the mouth or ſkin, by the eyes, ears, or pole in the neck, make an ointment of ſallad oil, ſalt, and allom over a gentle fire, and anoint the part well with it, and then cover it with a plaiſter of tar and flower of brimſtone; and by ſo doing it, two or three times over, the cure will be effected.

To prevent the ewes caſting her lambs. If you perceive a weakneſs in the ewe to bring forth with pain, or fear the loſs of the lamb, lay her ſoft, and boil a little horſe-mint (or for want of that, other mint) in a pint of ale, and ſo give it her warm, and ſhe will yean with eaſe.

For the leaf-ſickneſs in ewe or lamb. Since this often comes by too much brouzing on hawthorn or oakleaves, known by ſtaggering and turning round, thro' the chillineſs of the blood, caus'd by ſuch feeding, or phlegm amaſſed about the brain; ſo to remedy this, diſſolve aſafædita in warm water, and put half a ſpoonful into each ear of the lamb or ſheep, and ſtop the ear cloſe; and ſo the cure will be wrought, if timely taken.

For the polie or running at the noſe.

Smoak them with flower of brimſtone in a cloſe houſe, by ſprinkling it on a chafing-diſh of coals, and give them vinegar in which bay-berries have been boil'd.

For

For the murrain. Make holes in their ears with an awl, and put in the root of ſweetwort; then give an ounce of the oil of turpentine in a quarter of a pint of white wine, or for want of it vinegar, and ſprinkle the ſheep with water wherein fennel ſeeds has been boiled; and this may be ſafely given and uſed for the murrain of the lungs, occaſined by extream drought, or want of water in the hot ſeaſons.

For rheumsin the eyes. Get one handful of celendine, as much of honey-ſuckle-leaves and eye bright, boil them in a pint of white wine; ſpirt the decoction up the ſheep's noſtrils, and then waſh the eyes with it.

To remedy the falling off of the wool. It is occaſioned by the dryneſs of the ſkin, through the waſting of the ſheep for want of moiſture. To remedy which, boil aſhe keys or leaves, and give the water to drink: give them three or four times chopt hay with fennel ſeeds among it, and ſprinkle the ſheep with the lye of wood aſhes.

For bots or worms in either ſtomach or belly: Obſerve theſe by the ſheep's ſtamping often, and ſtriking at its belly with its feet, looking on its ſides, &c.

To remedy it, ſtamp the leaves of corriander and wormwood, ſo mix the juice with h[o]ney, and give it the ſheep faſting in a li[tt]le vinegar or verjuice.

For the belt. Cut away the tags, ar[d] ope[n]

the ſore, caſt fine ſifted mould on it, and cover that with a plaiſter of tar, oil of turpentine, and gooſe-greaſe.

For the cramp. Get cinquefoil, or five-leaf'd graſs, a handful, boil it in a pint of white-wine, and give half a pint in a morning warm, but bathe the legs with the oil of ſavin.

For the pox. It appears by pimples breaking out all over the body like the purples, which diſeaſes is infectious, and therefore upon their firſt appearance a ſeparation ought to be made between the ſound and infected. To remedy this, change the ſheep's paſture, and mix the juice of garlick with tar water, or very thin tar and urine, and ſo anoint the pimples: purge the ſheep with laurel-leaves and roots of holly boil'd in water.

For the moorfound and turning evil. Let blood in the temple-vein, or thro' the noſtrils, and rub the place with the juice of young nettles, and in half a pint of white wine give to drink an ounce of mithridate as hot as may be.

For a water in the ſheep's belly. It comes by over-moiſt feeding, getting between the skin and the inner rim of the belly: graſp it hard with your hand till it riſes like a bladder, then ſlit a little hole with a penknife, and put in a quill, ſo much of the water by preſſing will run out; then anoint the place with a mixture of tar and butter to heal it; but if it happen among

among the guts within the rim of the belly, you may purge it out with aloes and turmerick, each an ounce in warm milk faſting, for three or four days ſucceſſively.

For the ſtaggers. Get long pepper, honey, anniſeeds, linſeed, and liquorice each an ounce, powder what will pulveriſe, ſo put them all into two quarts of milk, and give it half a pint at a time, waſhing the mouth and temples with vinegar.

To faſten looſe teeth. Lance the gums, rub them with burnt allom and bay ſalt, and ſo waſh the ſheep's mouth with water wherein bay ſalt, lavender, and ſage has been boiled.

For a hurt or lame claw. Make a plaiſter of bees-wax, roſin, ſlacked lime, turpentine, and hog's lard; bathe the foot firſt with oil of camomile, then lay on the plaiſter, and bind it up, but don't ſuffer the ſheep to come in ſtony, wet or dirty places.

For the ſwelling of the belly. It is cauſed by unwholſome food; to cure which, bleed in the tail, and give a drench of water and brown ſugar wherein bayberries, rue, and camomile have been boiled till the water be very ſtrong of 'em; then give a quarter of a pint of olive oil.

For a defect in the lungs. Get red ſage one handful, purſlain and the herb colts-foot the like quantity, with a root of garlick; bruiſe them, then infuſe them in a quart of white-

wine; ſtrain well the liquid part, and add thereto an ounce of honey, with half an ounce of mithridate, and give half a pint warm morning and evening.

For giddineſs and dazie: As it often happens in the exceſſive hot weather, much troubles the ſheep, hinders their feeding, and endanger. their lives; ſo, to remedy it, let blood in the temple-veins, and ſlit the noſe-vein; then take mint, rue and baum, of each a little handful, and boil them in two quarts of ſmall beer; give a pint morning and evening ſucceſſively.

Of wounding in ſhearing. If in over-haſty ſhearing the ſkin be cut or raſed, to prevent its being a ſcab, make an ointment of tar, and butter, and anoint the place: and to ſtrengthen them after their wool is off, give them warm water wherein lavender has been infus'd, and a little boil'd corn, throw among their graſs ſome blades of onions, and coriander-ſeeds; and after you have ſhear'd 'em, put them in ſhady places, leſt the ſun ſcorch 'em and ſcald their ſkins, which heat may put 'em into a fever; beware when you drench 'em in any brook or pond, in order to the ſhearing, to keep up their heads, that they ſuck not in the water too much at their mouth or noſtrils, leſt it has the bad effect to produce rheums and head-achs.

To increaſe milk in ewes. If you find their udders drying up, or that they give but little milk, change their paſture to ſuch as has ſhort and ſweet graſs, and better than that from which you remove 'em; and if the ground hath a conveniency, drive them ſometimes on the hills, and at others into plain ground or valleys, for where the graſs is ſweeteſt and ſhorteſt they will eat with the beſt appetite: and when you bring them home, mingle with their graſs or ſhort hay dill, vetches and anniſeeds, and this will reſtore and encreaſe their milk.

To make an ewe in love with their lamb. If a ewe neglect her lamb new yean'd, take a piece of her, clean dry it, then beat it to powder, and give it her in a quarter of a pint of white-wine, and it will make her exceeding fond of it.

Prognoſticks of rot threatning ſheep before it falls among them. About Bartholomew-tide, or the beginning of September, go out in the morning as ſoon as the ſun riſes clear, and taſte the dew upon the graſs of your paſtures, and if it be bitter or brackiſh, or many long glittering flakes or ſtreaks, like the weavings of ſpiders lie on it, and ſo continues for ſome time, it prognoſticates a rot, or a very unhealthy winter for ſheep, eſpecially in the low wet grounds; or if they feed amongſt graſs that has not been mowed, to prevent the rot

taking hold of them, rub their mouth once a week with the ſalt call'd *adrecei*, diſſolve it in ſharp vinegar, and fright 'em early about the paſtures with a dog till they are well heated, for this beats the mildews from the graſs, and other dews that are hurtful to them in feeding, alſo the nettles, webs, and flaſks, which otherwiſe they might lick up, and thoſe contribute much to the rot.

The beſt graſs for ſheep is that amongſt which grows a good quantity of melilot, ſelf-heal, clover, cinquefoil, broom, white henbane, or knot-graſs.

Of SWINE.

As boars, ſows, barrows, ſhoals, pigs, &c. their choice, breeding, and ſuitable remedies for the diſtempers that are incident to them.

How to make choice of a boar and ſow, to raiſe a good breed. As for the boar, chuſe from amongſt others ſuch as is ſtrongly ſet, well truſs'd, and not too long of body, his ſtones large, and not over hanging down, but rather drawn up cloſe, which denotes heat and vigour, his mouth drawn upwards, but not over long; his breaſt and ſhoulders broad and thick, brawny and hard, his thighs full large and ſhort, his briſtles rough and ſtrong, erecting themſelves

ſelves on every occaſion of anger or diſguſt; of colour white, or inclining to ſandy, and not exceeding three years old.

To chuſe a ſow for a good breeder. Obſerve that ſhe is long of body, deep-belly'd and flank'd, her head and ſnout not over long; that ſhe has many teats, is broad buttock'd, her ribs broad and large, her eyes little, her legs not over long; for tho' ſwine with long legs may appear to be larger, yet it is but a deception of the eye, for the ſhort-leg'd ones, according to proportion, are more profitable, as to fleſhineſs and ſubſtance, and will be ſooner fatten'd, or breed more pigs. As to colour, only the black is rejected; and tho' the clear white is accounted the beſt, yet thoſe that are ſpotted, and of different colours, may prove very well n all reſpects.

What time is moſt proper for the ſow to take the boar; and how care is to be taken of her in the time of her going with pig, and farrowing.

The uſual time of a ſow's going with pig is four months, and may eaſily produce two farrows in a year, which being uſually numerous, produces a great encreaſe; and when the ſow is fourteen months old, or ſomewhat more, according to her ſtrength and bigneſs, ſhe is fit to take the boar; and her beſt time of breeding is till ſhe be four years old. The boar's beſt time of brimming is, from three to five years, eſpecially for ſuch pigs as you intend to

rear,

rear, for after that time they will be dwindles, and not arrive to any ſubſtantial growth.

Obſerve about Candlemas, in the encreaſe of the moon, to let her take the boar: ſhe being ſerv'd three or four times for the greater certainty, when you perceive ſhe has taken well, ſuffer the boar to come at her no more till ſome time after ſhe hath pigg'd, leſt he cauſe her to caſt her farrow, which uſually, when brought forth well-conditioned, are as many as ſhe hath teats.

When your ſow has farrow'd, if you perceive her milk ſcanty, you muſt help that defect at convenient times with bran and oatmeal ſifted into milk; and now and then a little warm broth; and if the weather be warm and kindly, then may you wean them at a month, ſuffering them to go abroad, but let them eat wholeſome green things, and ſcatter ſome ears of wheat and barley in their way, as alſo peaſe, to learn them to take other food, and then if you think fit, you may ſuffer the ſow to take the boar again. When your ſow is about to farrow, you will ſee her buſy about making her own bed; then you muſt aſſiſt her with clean dry litter, that ſhe may lie eaſy and at length: and if there be a difficulty in bringing forth, it is requiſite that you aſſiſt her with your hands, being firſt anointed with butter or hog's lard; and to comfort and encourage her, give her warm broth with bran ſifted into it, or a little

new

new ale; and obſerve that when ſhe is pretty fat gone with pig, that you keep her from acorns or ſower food, which by overmuch feeding on will endanger her caſting her farrow untimely, and ſo you may loſe your profit.

Of gelding, ſplaying, ſty-food, &c. At two months old, the pigs being luſty and healthful, you may proceed to geld your boar-bigs and ſplay the ſow-pigs; though if be let alone longer, 'twill not be amiſs, as four or ſix months, but let this be done in the wain of the moon, and then kept in places where they cannot hurt themſelves by leaping or overſtraining; and obſerve this be not done in a time of extream heat or cold, but in as temperate weather as the ſeaſon will permit, for then they will the ſooner heal and thrive the better, and their fleſh ſpend the better.

If you are to fatten hogs, make your ſtyes with partitions, for putting many together hinders 'em, and delays their feeding fat; beſides, being unruly quarrelſome creatures, the maſter-hogs will fright and beat the underlins from feeding. And to keep 'em free from the meaſles, obſerve to put finely ſifted red-led or oaker in their ſwill; as alſo keep from 'em all poultry, whoſe dung is offenſive to 'em, and if eaten by them, often contributes to many diſeaſes, as does carrion or dead fleſh, though they will often devour it greedily: give 'em no fiſh water, nor the waſhings of muſtardy plates

or

or trenchers, nor any ſoapy water, for that will ſicken them, and breed diſeaſes in both their eyes and head. Nail thin plates of lead at the bottom of the troughs, which will cool their noſes, and make them feed with more delight, and by a ſecret quality hinder the inflamation of their lungs: and let their ſtyes be in ſuch places where the extremes of heat or cold may not affect them, though they rather covet cold than heat, being themſelves of a hot conſtitution.

Of Diſeaſes in SWINE, *and other griefs.*

For the meaſles. This commonly happens by unwholeſome feeding and eating ſuch things as taint the blood: When you perceive it infeſts the ſwine, dip a hard bruſh in cold water, and rub him over, againſt the hair, as hard as may be, to ſtir the humour; then boil a handful of baum, and as much of parſley-roots and rue or carduus in a gallon of fair water, with two ounces of allom and a handful of bay-ſalt, and keep him thirſty, and then give it him with a little wheat-bran, that he may the eaſier ſwallow it.

For the ſwelling in the neck or throat. When the ſwelling riſes, which is often dangerous, bleed him under the tongue and tail, and make a plaiſter of the yolks of eggs, bees-wax, wheat flower, and Burgundy pitch; put coriander-ſeeds and ſliced horſe-radiſh in the trough among his meat, which muſt be bran and wash very warm.

For pains in the head. Let him blood un-

der the tongue and ears, rub his mouth with a mixture of vinegar and bay-ſalt, and give him lettice leaves, or colewort and beet leaves, boiled in whey; and in his water boil roſemary, vermaine, ſplent beans and lavender, and do this two or three days together.

For the ſwine-pox. Bruiſe long pepper and ſavin, boil them in cyder or verjuice, ſtrain out the liquid part, and diſſolve an ounce and half of mithridate in it, as much honey, and a quarter of a pint of ſallad oil; give it warm faſting two mornings.

For the fever and ague. Bruiſe two ounces of the leaves, berries or bark of bayberries, as the ſeaſon permits, and ſliced lemon; boil theſe in fair water with ſlices of parſnips, bruiſed pepper, ſage, and parſley roots; bleed him in the tail, and give the water to drink thrice a day with very ſpare diet, and keep him warm.

For the catarrh in ſwine. Bruiſe liverwort, hens-dung, red oaker, dried ſloes, and polipodium roots, boil them well in fair water, and give it warm morning and evening for two or three days.

For the murrain. Take the roots of garden or water lillies, mix a quarter of a pint of the juice with twice as much ſallad oil, an ounce of oil of turpentine, and as much turmerick finely beaten into powder; give it him in cool water about a pint, and if he grows hot or feveriſh upon it, bleed him under the tongue,

CATS

ears and tail; boil ma'lows and groundſil in his waſh, and add a little bay ſalt.

For vomiting and nauſeating food. Give the ſwine fennel-ſeeds, ſloes, and ſplent beans boiled in waſh, and this will recover his ſtomach.

For impoſtumes in any part. If they grow ſoft and come to a head, lancing will bring the corruption away, but if not, make a plaiſter of oil of ſpike, tar, turpentine, and lilly-roots, with rye-meal, which will draw 'em to a head; then lance, and apply a plaiſter of bees-wax, mutton-ſuet, and Burgundy-pitch two or three days; after that anoint with oil of camomile or mallows, and lay on a plaiſter of diachilon to heal the wound; if there ſhould happen any proud fleſh, eat it out with burnt allom or ſalt finely powdered, tenting it with a rag or flax dipt in oil of petre.

For the Frenzy. This is a dangerous diſtemper, moſtly cauſed through worms breeding in the head, and ſometimes makes the ſwine deſtroy himſelf by beating himſelf againſt the ſty, or tumbling down ſome ſteep place, or into the water, unleſs great care be taken.

Wherefore, for a timely remedy, take an ounce of the juice of briony root, as much of the juice of wormwood, ſingle poppy-water a quarter of a pint; hold up his head by ſtrength, and put theſe warm into his noſtrils, and ſo hold it the ſpace of a quarter of an hour at leaſt

leaſt, then give him a drench of vinegar wherein colewort leaves or lettice have been boiled.

To reſtore a defective liver. Take an ounce of flower of brimſtone and half a dram of creud antimony, put it into half a pint of verjuice, or the juice of ſower grapes, and give it warm; this will alſo reſtore a pall'd appetite.

For blaine or boils. Take bees-wax, turpentine, Burgundy-pitch, and a little ſoft greaſe to make them into a plaiſter over a gentle fire; clip away the hair or briſtles where the ſore is; anoint it firſt with ointment of tobacco, and then lance and ſprinkle burnt allom or burnt ſalt on the wound, after anoint it with the former ointment, ſo lay on a plaiſter of ſheeps ſuet and bees-wa xto heal it.

For ſtubs or thorns in the feet. Sometimes theſe are got, and cauſe very much lameneſs and ſwelling. When you firſt perceive it, open the place grieved with the point of a ſharp knife, and draw out the thorn or ſtub if you can; elſe lay Burgundy pitch and turpentine, which will do it, then anoint it with oil of ſpike and olives, and by keeping it from dirt or gravel, it will heal.

For pains in the teeth. It is cauſed by wind or hot rheums, and ſometimes make the ſwine run mad. To remedy it, lance the gums, rub them with burnt ſalt and allom diſſolved in vinegar; bleed him under the ears, and give water wherein fennel has been boiled.

To remedy ſcowering. This happens by the often change of food, eſpecially during the time the ſwine is up a fatting, and much hinders the progreſs of it. It is ſtayed by putting the powder of ſloes in verjuice; let them ſteep twelve hours, then put the verjuice into a quart or more of new milk, and give it.

For ſcurf, or mangineſs. It is occaſioned by the corruption of the blood, cauſing a lameneſs or falling away in ſwine, making them ſick and unſightly. To remedy which, let blood under the tail, and rub him with a wool card from back to tail till the ſkin bleeds, then make an ointment of tar, gooſe-greaſe, and brimſtone, and anoint him all over; give him ſhort clean litter, with warm food, and keep him cloſe for two or three days.

For extreme drought. This happens by exceſſive drinking in hot weather, therefore when you ſee them drink immoderately, boil wood-ſorrel and houſleek in the water you give them; peg their ears, and put a tent of root of ſweet-wort into the holes, and ſo the heat of the liver will be cool'd, and the violent thirſt ceaſe.

To prevent decay in fleſh, and falling away. It comes from a diſtaſte of food, that the hog will come to the meat, put his ſnout in, and then ſuddenly fall back and ſtare as if he were dying; which ſome have ignorantly ſuppoſed to be cauſed by witchcraft.

To remedy this, give him water wherein the

the roots of wild cucumbers have been ſtampt and ſtrained, and let him faſt an hour; then give him good warm pollard, and in two or three days ſo doing he will be reſtored to an appetite by vomiting up the foulneſs of his ſtomach, and after encreaſe in fleſh and health.

For the ſleepy evil. As the heat of the weather moſtly occaſions this, by hurting the brain and doſeing it, or elſe over feeding, which ſends up hurtful vapours from the ſtomach, to remedy which, keep the ſwine faſting twenty four hours, and having water wherein the herbs ſtonecrop and comfrey have been boiled, give it him to drink, anointing his temples with oil of ſavin.

For the milt pain. Where this pain is contracted, you will perceive the hog go reeling and ſideling; this is cured by boiling wormwood and honey in fair water, and give it.

For the quinſey. As this much afflicts ſwine, and is very dangerous if not timely remedied, ſo when you perceive it, immediately let blood in the vein behind the ſhoulder; or if the kernels fall conſiderably under the throat, or by the ſide of the neck, bleed under the tongue, and rub the mouth with ſalt, and wheat flower; then take an ounce of ſhavings of hartſhorn, a handful of daffodil roots, and the like of ſalt, ſtamp them and boil them together in vinegar; give half a pint hot, and anoint the ſwelling with oil of ſpike.

For the ſpleen. It comes by over much feeding, cauſing corrupt blood about the liver and heart. To remedy this, give him water wherein tamarinds have been boiled, and the coals of burnt heath often quenched, and by frequently drinking it, the pains will ceaſe.

To cure the lugging of a dog. If you would prevent maggots or corruption in the wound, anoint the ears, being firſt waſh'd with vinegar, with an ointment of tar, mutton-ſuet, and oil of olives or ſallad oil; lay flocks over it.

For the biting of mad dogs. Diſſolve a handful of bay-ſalt in a pint of man's urine and a little ſoot, beat theſe together with the yolks of two eggs, bathe the wound with it, and then lay on a plaiſter of turpentine, mithridate, and bees-wax, and give the ſwine ſome verjuice warm to drink.

To kill Lice and Ticks. Anoint with oil of turpentine or linſeed oil and flower of brimſtone.

To kill worms and maggots. Get black ſoap, or for want of it other ſoap, mix it with tar or tar-water, and anoint the place: this will not only kill the preſent, but prevent the future from breeding in ſore places.

For bruiſes, fractures, or broken bones. Get turpentine, ſheeps-ſuet, and bees-wax, of each an ounce, make a ſalve, but bathe firſt with oil of camomile, then lay on the plaiſter and bind

bind up the fracture or diſlocation, that they by this means may be healed and come right again.

For bloodſhot eyes or ſpecks. Waſh them with the juice of rotten apples and bettony, and give ſliced parſnips or turnips in their food; this alſo will take away inflammations in the eyes.

For impoſthumes or ſwellings about the throat, &c. Bruiſe a quarter of an ounce of alloes into fine powder, put it into a quart of wine vinegar, with a handful of camomile and the like quantity of May-weed: boil them a little, and give the liquid part to the ſwine to drink; then clip the hair cloſe, and lay on a plaiſter of tar and rye-meal: this will either take away the ſwelling, or cauſe it to break, or render it ſo that it may be lanced and the corruption brought away: then you may heal it with the ſalve melilot.

Overflowing of the Gaul. This is often attended with ſeveral diſeaſes, if not timely remedied, and is known by the ſkin inclining to yellowneſs, as alſo the roof of the mouth, which when perceived, take of bole-armoniack and turmerick each an ounce, beat them to powder, and add an ounce of honey and a dram of ſaffron; infuſe them in a quart or three pints of ſweet-wort, and give it without ſtraining.

For the Flux. It comes from great looſeneſſes in eating unwholſome food. To remedy which, bruiſe nutgalls or dry'd acorns, ſloes, and white ſtarch, of each an ounce; boil them in a pint of vinegar and a quart of milk; ſtrain it, and give it warm morning and evening.

For the Plague, or any other diſeaſe in the milt. Bruiſe long pepper, coriander ſeeds, and ginger, half an ounce each; boil them in milk with an ounce of camomile-flowers, and give it hot three times at three hours diſtance.

For ſeveral diſeaſes in the eyes. If there be ſpecks, films, or ſpots, blow with a quill the powder of burnt allom into the eye, and it will eat 'em away: if rheums or watering, take the juice of houſleek, celandine, and bettony, and waſh the eyes often with it.

For a cold or busking cough. Take the juice of longwort and liquorice in powder, each two ounces, ſallad oil four ounces, the juice of the herb coltsfoot an ounce; give it faſting in a pint of warm ale or beer.

For belly-pains. Get May-weed a handful, ground ginger an ounce, anniſeeds and fennelſeeds a like quantity, treacle an ounce; boil them in a quart of beer.

For ſwelling upon eating any infectious herbs or the like. Mad-charvil, milfoil, hemlock, and henbane often ſicken ſwine with eating,

as

as do many other things, which they ought to be kept from as much as may be; but if this happens, boil anniſeeds and wild cucumbers in ſpring water, put in a handful of bay-ſalt, ſo give the liquid part warm to drink, and it will purge out the infection.

For Rheums in the head. Purge the ſwine with garlick, and burn a rag with ſtorax and brimſtone under their noſes in a cloſe place: or do it by ſpringling the powder of theſe on a chaffing-diſh of coals.

For blindneſs in pigs newly farrowed. This happens eſpecially in cold froſty weather, or a defection in the ſow's matrix. To remedy it, give 'em juice of houſleek and celandine in their milk, and waſh their eyes with the ſame juice and milk, by dipping a feather when 'tis warm.

For laxativeneſs in ſwine. It often falling on them, waſtes their fleſh, hinders their growth and fattening. To remedy this, give them dry meat often, as peaſe, beans, barley, and ſour grapes; and in their drink put vinegar, verjuice, or ſour berries.

For a ſow ſick in or after farrowing. Get baum, lavender-flowers, and a handful of dry roſe leaves, boil them in a quart or two of ſweet-wort, ſweeten it with a little coarſe ſugar, and give half a pint warm at a time, and it will wonderfully revive and ſtrengthen her.

For

For falling out of the womb or fundament. Put it up as well as you can with your hand dipt in oil of linseed or other oil, when you have first sprinkled it with powder of aloes and allom.

PART

PART III:

Farriery Made Eafy.

How to know a Horſe's Age while he hath Mark.

WHEN a horſe is two years old and a half he hath twelve foal-teeth in the fore-part of his mouth; and about that time, or ſoon after, four of them do fall, viz two above, and two below, in the very middle. In ſome horſes they do not fall till three years, the obſervation not being ſo exact as always to anſwer to years and a half. There grows in their place four others, called Nippers, or Gatherers,

ers, much ſtronger and larger then the foal-teeth, and then he is at moſt but three years old, and commonly but two and a half.

At three and a half, and ſometimes at four, he caſts the next four foal-teeth, viz. two above and two below, and in their room come four teeth call'd Seperators.

There remains then but four foal-teeth in the corners, which he changes commonly at four years and a half. It will be neceſſary to keep in memory two and a half, three and a half, and four and a half; that is to ſay, when a horſe has caſt two teeth above and as many below, he is but two years and a half: when he hath caſt four teeth above and as many below, he is three years and a half; and when he has caſt ſix above and as many below, which is to have them all changed, then he is four years and a half old.

It is to be obſerved, that the corner teeth in the upper gums are caſt before thoſe in the nether: but on the contrary the under tuſhes grow out before the upper. And horſes are often ſick when the tuſhes of the upper gums cut, but are never ſo when thoſe below come forth.

The tuſhes are preceded by no foal-teeth, but grow up when a horſe is about three years and a half, and commonly grow up before the corner teeth are caſt.

So ſoon as the Gatherers and Separators have pierced and cut the gums, they make all their growth in fifteen days: but the corner-teeth do not grow ſo ſuddenly. Yet that doth not hinder but that at their very firſt appearing they are as thick and broad as the other, but are no higher than the thickneſs of a crown-piece, and very ſharp and hollow.

When a horſe hath no more foal-teeth, and that his corner-teeth begin to appear, he is then in his fifth year; that is, he hath about four years and a half, and is going in his fifth. When he firſt puts out his corner-teeth, they are of equal height with the gums on the out-ſide, and the inſide of them is filled with fleſh until he be near five; and when he comes to be five years o'd, that fleſh diſappears, and there will remain in the place of it a hollow; that is, they are no high on the in-ſide as the out, which they will come to be about a year after their firſt appearing: ſo that when a horſes corner-teeth are filled with fleſh, you may confidently affirm that he's not five.

From five to five and a half, the corner-teeth remain hollow on the inſide, and that part which was filled with fleſh is empty.

From five and a half till ſix, the hollow on the inſide fills up, and the teeth grow and become flat and equal at top, only a little cavity remains in the middle, reſembling the

eye

eye of a dry bean, and then they ſay the horſe is entring ſix. And ſo long as a horſe's corner-teeth are not ſo high on the inſide as the out, he is ſtill ſaid to be but five, altho' he be but five and a half, and ſometimes ſix.

You may alſo do well to remember, that at four years and a half, when the corner-teeth appear, and are filled on the inſide with fleſh, that the outſide of them will then be about the thickneſs of a crown above the gums, and will ſo continue till five. And from thence to five and a half the outward edge will be about the thickneſs or two crowns above the gums. At ſix they will be about the breadth of ones little finger above the gums, and his tuſhes will be at their full length. At ſeven years they will be about the thickneſs of the ſecond or ring-finger above the gums, and the hollow almoſt quite worn out and gone.

At eight years old the horſe will be razed: that is, none of his teeth will be hollow, but flat quite over, and about the thickneſs of the middle finger above the gums.

After a horſe has razed, a man cannot judge of his age, but by the length of his fore-teeth, or by his tuſhes.

As the gums through time grow lean, ſo they make the teeth to appear long; and it is certain, that ſo much the longer a horſe's teeth are, he is ſo much the older; and as he grows

grows old, his teeth will contract ruſt and become yellow: not but there are ſome old horſes who have very ſhort and white teeth; and people ſay of ſuch horſes, that they have a good mouth conſidering their age. Some alſo will have a black ſpeck in their teeth, reſembling the true mark, a long time after they are paſt eight or nine; but then it is not hollow.

The tuſhes are the moſt certain mark whereby to know a horſe's age.

If a horſe be but ſix, the upper tuſhes will be a little channell'd, or ſomewhat hollow'd or groov'd upon the inſides: and when he is above ſix, they fill up, and become a little round in the inſides. This obſervation never or rarely fails.

If you feel the tuſhes of his upper jaw with your finger, and find them to be worn equal with the palat, the horſe is then at leaſt ten years old. This obſervation ſeldom fails, unleſs the horſe when young hath carried a bigger mouth'd bitt than was proper for him.

Young horſes have always their under-tuſhes ſharp and pointed, pretty long, ſomewhat edged upon both ſides, and without any ruſt upon them: but as they become aged their tuſhes grow big and blunt, round, and ſcaly, and in very old horſes, they are extremely thick, round, and yellow.

A horſe is ſaid to be ſhell tooth'd when he has long teeth, and yet black ſpecks in them; and this mark laſts all their life. It is eaſily known, becauſe the mark appears in the other fore teeth as well as in the corner teeth.

In age, the points of the Gatherers ſtand outward a little; and when extremely old, point almoſt ſtrait forward; but when he is young they ſtand almoſt ſtrait up, and are juſt equal with the outer edges of thoſe above. Sometimes the upper teeth do thus point forward, but for the moſt part it is the under that do it.

If you require no exactneſs, but only to know if he be young or old, lift up the upper lip; and if his upper teeth be long, yellow, and overpaſſing thoſe below, it betokens age. As the contrary ſigns, ſuch as ſhort and white teeth, and thoſe of the upper jaw not overpaſſing thoſe below, betoken youth.

There are ſome horſes whoſe teeth continue always white and ſhort, as if they were but ſix. When ſuch horſes fall into the hands of cheats, they oftentimes counter-mark them, by hollowing the corner-teeth with an ingraving-iron, and putting ſome double ink immediately into the hole, and there let it dry, which will remain as long as the teeth continue hollow. Others with a red-hot iron burn a grain of rye in the hollows of the teeth, which makes them perfectly black; for there

proceeds

proceeds from a rye a kind of oil, which by the help of the burning, cleaves faſt to the hollows of the teeth newly cut. To prevent being cheated by ſuch villains, obſerve if there be any ſcratches on the outſides of the hollows of the teeth (becauſe the graver ſometimes ſlips and ſcratches the other part of the teeth) for then you may conclude him countermark'd; and an artificial hollow is much blacker than a natural. Take notice alſo of his upper tuſhes; the inſides of which ſhould be groov'd or hollow until the horſe be ſeven years old. Obſerve alſo if he have any ſigns of old age, ſuch as the upper teeth long, overpaſſing thoſe below, and yellow; the lower part of the neither jaw-bone ſharp and edged; the under tuſhes uſed, big, and ſcaly; if he have theſe tokens of age, and yet appears marked, it is very probable that he is countermark'd.

I have heard of filing a horſe's teeth to make 'em ſhort; but I believe no man ever made twice trial of it in his life time. For if you file the under teeth, which are thoſe at which people look to know the age, then thoſe above will be obſerved to be longer than thoſe which have been ſhortned: And if the teeth both above and below be ſhortned, then the jaw teeth or grinders being at their full length will join, and ſo hinder the upper and lower teeth, which were ſhortned, from

cloſing, which will plainly diſcover the cheat: for the horſe's mouth being ſhut, the fore-teeth will be a great diſtance from each other. Beſides the horſe would not in a long time be in a condition to chew his meat, by reaſon of the ſtreſs endured by the filing; neither could he draw his hay or ſtraw from the rack, becauſe of the diſtance between his lower and upper teeth.

Having now explained how a horſe's age may be known by his teeth, I ſhall next give you ſome other rules, tho' not ſo certain as the former.

Some have recourſe to the joints of the tail, paſſing their hand along it, to feel for a knot or joint in the upper part of it, which cometh forth when he is between ten and twelve; a ſecond when he is fourteen. Others thruſt back a horſe's under lip; and ſo many plies or folds as they find, ſo many years old they ſay he is. They who are ſatisfied with theſe marks may make uſe of them; for my part I eſteem them very little. After the mark is gone, I always have recourſe to his legs, to know if they be neat and good; to his flank, if it be well truſs'd, and not too full and ſwallow'd up; to his feet; and laſtly, to his appetite. However, I ſhall give you ſome other obſervations to know the age of a horſe that is paſt mark.

When

When the pitts above the eyes are extremely hollow, it is for the moſt part a certain token of old age; although horſes got by an old ſtallion have them very deep at four or five years old, as alſo their eye-lids and eyes wrinkled and hollow.

In young horſes, that part of the nether jaw bone, which is 3 or 4 fingers breadth above the beard is always round, but in old horſes ſharp and edged: ſo that a man who is accuſtomed to it, will, before he open a horſe's mouth, judge pretty near of his age. This a is good remark.

Another certain mark of old age is when a horſe Seeleth, that is, when upon his eye-brows there groweth about the breadth of a farthing of white hairs, mixed with thoſe of his natural colour. A horſe never ſeeleth until he be 14 years old, and always before he be fifteen or ſixteen at fartheſt. The light ſorrel and black do ſooner ſeel than any other colours.

Horſe courſers commonly pull out thoſe white hairs with pincers: but if they be ſo many that it cannot be done without making the horſe look bald and ugly, then they colour their eye-brows, that they may not appear old.

You may judge of his age alſo by looking on his palat, becauſe as he grows old the roof

mouth grows leaner and drier towards the middle: and those ridges which in young horses are pretty high and plump, diminish as they increase in age: so that in very old horses the roof of the mouth is nothing but skin and bone. This remark is good, especially in mares, who have seldom any tushes whereby to know their age.

Grey horses become white, as they grow old, and when very aged, are white all over; but this doth not conclude, that no horses are foaled white, altho' but very rarely. But those which are foaled grey are known by their knees and hams, which continue, for the most part, still of that colour.

General Rules necessary to be observed, relating to the Feeding, Dressing and Exercise of HORSES.

UPON the feeding, dressing and exercise of healthy horses, wholly depends the continuation of their perfect state of health, therefore an uniform and regular simplicity must be observed in a horse's diet; for by dispensing his daily food with regularity and judgment, he is prevented from experiencing a number of destructive complaints, which are always the result of irregularity and intemperance.

For

For Engliſh horſes barley is not ſo durable or good a diet as ſound ripe oats, which univerſal experience has proved agrees beſt with their conſtitutions; the too frequent uſe of bran, whether ſcalded or dry, weakens and injuriouſly relaxes the bowels: and what bran is given to them ſhould be perfectly ſweet and freſh, for from the uſe of muſty bran mixed with foul ſeeds and chaff often proceeds that dangerous diſorder the Bots, with which our young horſes are ſo generally afflicted: this very unwholſome food they are plentifully ſupplied with by thoſe perſons who breed them and rear them up for ſale. On the other hand, for diſeaſed horſes, good bran when properly ſcalded, is an aſſiſting nouriſher to the internal, but it muſt be adminiſtered with prudence, and as it is thought neceſſary in the diſtemper'd beaſt's ſituation.

In the choice of hay, the owners of horſes cannot be too nice, as it is an article that principally conſtitutes the diet of horſes in general. Hay that is infected with duſt of any kind, is extremely prejudicial to the health of the animal that feeds upon it, therefore it ſhould be carefully cleanſed and ſeperated from any intermixed dirt, by ſhaking it ſeveral times before it is put into the rack.

The ſtomach of a horſe is much depraved when you perceive him fond of eating his litter;

ter; to correct which depravity, reduce some chalk to powder and mix it, and cut some straw along with his feed.

To labouring horses, beans afford much nourishment, and for a durable meal surpass all other grain.

For horses troubled with the Bots, indigestion, &c. take some straw, cut it small and mix with it a feed of hay: this I know by personal experience to be very useful in these cases.

For those horses who have been little used to exercise, and who are glutted with a constancy of good food, and not used to exercise, a month or six weeks of summer's grass in May and June is very necessary. Horses that are troubled with wind-galls, swelled legs and stiff limbs, more particularly require it.

Horses should not be pastured in July and August, for in these months the excessive heat, and the great number of flies makes the days insupportable to them; and the gourdiness or wind-galls of afflicted horses, will rather be considerably increased than diminished by their continual stamping, kicking, and rolling themselves about for ease.

The drinking of sea water has a very good effect in obstinate chronical disorders on morbid horses, therefore though their cases may

seem

ſeem deſperately bad, I adviſe a trial of this much recommended remedy.

When horſes grow hot and coſtive on their being brought home from graſs, take ſome hay, chop it very ſmall, and mix it along with ſome bran with their corn: exerciſe and diet them very moderately for ſome time, then gradually increaſe both to their due proportion, giving them ſometimes a feed of ſcalded bran.

Sometimes to ſweeten the blood and keep the body properly open, equal quantities of ſulphur and the liver of antimony are mixed with their maſhes or feeds of corn; but this apparently ſucceeds beſt, and is of greater ſervice when the blood has been previouſly and gradually warmed for eight or ten days with gum guiacum and antimony.

When you deſign to ſoil a horſe in the ſtable, let the herbage procured for that purpoſe be quite ſappy, young and tender: it ſhould be cut freſh every day, for when it is old and fibrous, conſequently it is deprived of its ſap, and frequently creates obſtructions in the bowels by its tendency to putrefaction, when an immediate evacuation ſhould be obtained.

Horſes ſhould not be ſoiled immoderately, for if they are, they will decreaſe conſiderably in their fleſh. Soiling and grazing are widely different, for in grazing when the graſs has

has purged a horſe, it fattens him afterwards; but in ſoiling he loſes his fat, which continuing, the ſoiling will not reſtore to him: the ſoiling ſhould therefore be timely changed to a more ſolid diet, and other kind of proper food.

Horſes that work hard and conſtantly, ſhould be well and carefully fed, and require good allowance of corn; other horſes that are uſed only for amuſement and pleaſure, ſhould be fed in proportion to their general exerciſe.

When a horſe comes out of a dealer's hands, he ſhould loſe blood and have his diet lowered, with moderate walking exerciſes.

General rules relating to bleeding and purging horſes. Bleeding is requiſite now and then for thoſe horſes that ſtand much in the ſtable, and are conſtantly well fed. Mangling their hay is a ſign of their indiſpoſition, and ſhould be noticed.

Bleeding greatly abates the feveriſh heat which young horſes are ſubject to when they are ſhedding their teeth; all inflamatory diſorders either in the eyes or elſewhere, colds and fevers of all kinds, and ſtrains, falls and bruiſes particularly demand immediate bleeding; and when a horſe grows fleſhy at graſs, or when at any other time he appears heavy, bleeding is neceſſary. When they are let

blood

blood, you ſhould meaſure it that you may the more exactly aſcertain what quantity of blood they looſe, and whether it is or is not a ſufficient quantity and as much as their diſorder requires they ſhould looſe. The blood when cold, carefully examine, and form your opinion of his condition, by the appearance of its colour and conſiſtence. Theſe methods of treating horſes reſpecting the bleeding of them, I have ever practiſed with good ſucceſs.

As to the purging of horſes, they are in general purged with great difficulty; the phyſic ſeldom begins to operate until it has lain near twenty-fours in the horſe's guts to whom it is given; for it has to paſs through a tract of bowels (laying in a horizontal poſition) of above thirty yards.

Purging is alſo neceſſary in ſpring for ſtabled horſes, who are not much exerciſed or rode out in the air. They ſhould be previouſly prepared by bleeding, lowering their uſual diet, and by giving them ſcalded maſhes of bran now and then. Purging is alſo requiſite in diſorders of the liver and ſtomach, and for groſs, full fed horſes; but they ſhould be always given with caution, and poſtponed until the horſe that requires them has been properly prepared for the taking them, as before directed; which preparation unloads the ſtomach of any indurated excrements, by

opening

opening the bowels and clearing the internals of any obſtruction, which otherwiſe might prevent the effectual operating of the phyſic, by cauſing dangerous gripings, &c. likewiſe for horſes that fall off their ſtomach, whether occaſioned by ingendering crudities and indigeſted matter, or proceeding from a ſurfeit by too full feeding; mild purges are very requiſite; here it is proper to obſerve, that for horſes of a hot temperament, mild cooling phyſic is the beſt, for they cannot bear the uſual aloetic purges.

Purges though ptoper'y prepared, will not always paſs off by ſtool; but though they do not, their operation may be more efficacious as an alterative, to purify the blood by paſſing off by urine, &c. and all purging medicines perform as alteratives, when mixed with other phyſic and given in moderately ſmall quantities.

The beſt manner of giving purges and working them off is as follows: give the purge upon an empty ſtomach early in the morning; four hours after or rather ſooner if you think it neceſſary, give him ſome ſcalded bran and put ſome hay into his rack; the ſame day he ſhould have two more maſhes, but you may venture to give him raw bran if he loaths the warm maſh; if he will not drink white warm water, give him ſome without bran, but it will be much better with a pint

of

of bran squeezed in it: treat him in this manner the first day, and early the next morning give him another mash, or as much warm water as he chuses to drink; if he refuses to eat the mash then ride him very leisurely about, but observe not to take him out of the stable until he has been sufficiently cloathed, and except he purges very much: do so two or three times that day, but if he purges violently one or two gentle exercises or airings will be enough for him, and at night give him a moderate feed composed of oats mixed with bran. If you can get him to drink plentifully during the operating of the purge it will be so much the better; and if he will not touch warm'd water you must let him have some cold, rather than not have drink at all. The following receipt for a purge has been generally approved of by the most eminent judges:

Of grated ginger take one drachm, of salt of tartar and jalap each two drachms, and of succotrine aloes ten drachms; to these put of oil of cloves thirty drops, and make all the ingredients into a ball of a proper consistence with syrup of buckthorn.

Castile soap is an excellent addition to any of the above receipts; for a horse of a gross constitution half an ounce may be added, and that quantity proportionably increased for stronger horses.

For fine delicate horſes. Take of grated ginger one drachm, of the very beſt rhubarb finely powder'd half an ounce, and of the fineſt ſuccotrine aloes one ounce; form theſe ingredients into a pretty ſtiff ball with the ſyrup of red roſes.

After purging, ſome horſes loſe their appetites: when they do ſo, an infuſion of ſaffron anniſeeds, and camomile flowers, is a a neceſſary, beneficial ſtrong, ſtomachic drink.

When a horſe purges too long, gum arabic water is a good remedy, which is made as follows:

In a gallon of water put half an ounce of bruiſed cloves, carraway ſeeds one ounce, juniper berries half an ounce, gum arabic and tragacanth four ounces each; let them all ſimmer together until the gums are quite diſſolved, then ſtrain off for uſe; and of this liquid infuſe a quart at a time in half a pail of water: ſome horſes are averſe to taking it in this manner, therefore it muſt be given ſuch pretty often in a horn.

Warm diuretics are the only remedy to be given when a purge does not operate; when this is the caſe, the horſe ſwells and refuſes his food: the following diuretic I recommend to my readers:

Take of oil of juniper two drachms, of unrectified oil of amber two drachms, nitre one ounce, camphor (diſſolved in a ſmall quantity

quantity of rectified ſpirit of wine) one drachm; and ſyrup of marſh-mallows four ounces; mix it with a pint of white wine for uſe.

When a phyſic'd horſe ſwells he ſhould not be rode about, but, until he evacuates lead him leiſurely along in hand; and when he has had ſome vent, he may then be back'd and rode gently for a proper time.

The drink of a horſe ſhould always be made palateable; all nauſeous things ſhould be made into balls, thetefore to render their drink as little ill-taſted as poſſibly, it ſhould be ſweetened with honey.

Before a horſe gets mercurial phyſic, he ſhould have two drachms of calomel mixed up with ſome honey, and half an ounce of diapente given him the preceding night.

I ſhall proceed to preſcribe ſomh ſoums for clyſters.

Clyſters ſhould rather be frequently repeated than given in too large a quantity at one time, which ought never to exceed three pints, indeed a quart is ſufficient: nor ſhould they be made very fat, milk pottage, rice milk, or broths made of trotters, ſheeps heads, or other meats properly ſtrained are in their kinds extremely nouriſhing. In giving clyſters a bag and pipe is much preferable to a ſyringe; the latter throws up the clyſter too forcibly, which occaſions its being rejected as faſt as it is given; but when the former is

made uſe of, the clyſter gradually aſcends by the gentle preſſure of the bag.

Before an emolient clyſter is given, a ſmall hand after having been dipp'd in ſweet oil ſhould be gradually and tenderly paſſed up the fundament of the horſe unto whom the clyſter is to be given, with intent to clear the paſſage for the clyſter by bringing away any hardened dung, which otherwiſe might prevent its paſſing freely.

For a laxative emollient clyſter, take the underneath receipt.

Take a handful of ſalt, oil one pint, and half a pound of treacle; mix theſe with two quarts of water gruel for uſe.

The following purging clyſter, is an immediate remedy in ſome fevers with inflamed lungs, or any diſorder that demands ſpeedy relief by evacuation.

Boil in three quarts of water for one quarter of an hour bay berries and anniſeeds bruiſed of each one ounce, bitter apple half an ounce, ſena one ounce, and of marſh mallows three handfuls; then pour off, and add to the liquor half a pint of oil and 4 ounces of ſyrup of buckthorn for uſe.

For a reſtringent clyſter, take the following receipt:

In two quarts of water boil until one is nearly waſted of baluſtines one ounce, freſh or dry red roſe leaves one large handful, and

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of pomegranate bark two ounces: when it has boil'd as above directed, pour off and diſſolve it in four ounces of diſcordium.

But if the pomegranate bark cannot be conveniently got, inſtead of it you may ſubſtitute oak bark, and you may add a pint of red port wine.

The longer clyſters of this kind lie in the bowels, the more ſerviceable and efficacious they are: but obſerve, never give them in large quantities.

When you deſign to give a purging clyſter to a horſe, beware of giving him a ſolution of coarſe aloes for that purpoſe, for they excite feveriſh and frequently convulſive ſymptoms, and always gripe horſes violently.

Of the method of curing bots and worms in horſes. Bots in the ſtrait gut have been frequently cured, by giving to the afflicted horſes a ſpoonful of ſavin, and three or four cloves of garlic in moiſten'd oats or bran twice a day: the following aloetic purge ſhould be given between whiles.

Of oil of amber and ſavin take one drachm each, of myrrh finely powdered and ariſtochia of each two drachms, jalap one drachm, and the fineſt ſuccotrine aloes ten drachms: form theſe into a ball, with a ſufficient quantity of ſyrup of buckthorn.

For deſtroying the ova. Take crude quickſilver two drachms, venice turpentine half an

ounce; rub the quickſilver until no gliſtening appear, then add an ounce of aloes, a drachm of grated ginger, thirty drops of oil of ſavin, and a ſufficient quantity of ſyrup of buckthorn to make a ball.

One of theſe balls may be given every ſix days, with the uſual precautions in regard to mercurial phyſic; and theſe powders intermediately.

Take powdered tin and ethiop's mineral of each half an ounce: give every night in a maſh or his corn.

If the diſeaſed horſe feeds badly, and is of a tender conſtituion, the following bitter drink will greatly contribute to ſtrengthen his ſtomach and aſſiſt his digeſtion; for the generation of worms principally proceeds from a bad digeſtion and weak ſtomach.

Infuſe in three gallons of ale for a week 4 ounces of juniper berries, iron filings half a pound, powdered jeſuit's bark two ounces, tops of centaury three handfuls, camomile flowers two handfuls, gentian root 3 ounces, galangal and zedoary 2 ounces each: while theſe ingredients are infuſing, ſhake the veſſel that contains them frequently; and of the infuſion give a pint night and morning.

Of the ſymptoms of the yellows or jaundice, with remedies for the cure of that diſeaſe in horſes.

This diſeaſe is firſt perceived by the yellowneſs of the eyes, the tongue and roof of the mouth

mouth, and the inside of the mouth and lips being of the same hue, the horse looks very dull and refuses his food, and tho' the fever is at first very slow, yet that and the yellowness increase quickly together, his urine has a nasty brown colour, and when settled has the appearance of blood, and he makes it with great pain & difficulty. In old horses the belly becomes hard and swoln, and a cure is doubtful, if the liver has been long diseas'd; but in young horses, and when the disorder is check'd in time a cure is practicable, if the following directions are strictly observed:

The first is to bleed the horse plentifully, and as jaundic'd horses are generally very costive, make a clyster of the following ingredients, which throw up as soon as possible in the manner I have before directed, namely, with a pipe and bag.

In three quarts of river water put one handful of fresh camomile flowers, one ounce of fennel seed, and two handfuls of marshmallows; boil these until one quart of the water is consumed, then strain and add a pint of linseed oil and a quarter of a pound of treacle.

The next morning give him the following purge: Take succotrine aloes six drachms, saffron two drachms, and indian rhubarb finely powdered one ounce and an half; which

make

make up with a ſufficiency of ſyrup of buck-thorn.

Repeat this purge three times, and give him the following balls and drink, immediately, and at proper intervals.

Take caſtile ſoap one ounce, millepedes half an ounce, and ethiops mineral the ſame quantity; form theſe into a ball of a proper ſize, one of which give every day, waſhing it down with a pint of the underneath opening draught.

In a gallon of water put two ounces of ſliced liquoriſh, ſliced burdock root half a pound, turmeric and madder root of each 4 ounces, and rhubarb 4 ounces: boil the quantity of water away to three quarts, ſtrain it and make it palateable with honey.

Three or four ounces a day of turmeric and caſtile ſoap made into balls and given to the diſtemper'd horſe, will in recent caſes prove ſucceſsful.

You muſt in caſe this prove ineffectual, have recourſe to mercurial phyſic, and repeat the doſe at proper intervals more than once or twice, afterwards throw down the following alterative balls:

Of caſtile ſoap take half a pound, ſaffron half an ounce, filings of ſteel two ounces and an half, melipedes three ounces; cinnabar of antimony four ounces, and ſalt of tartar three ounces; make theſe into proper ſized balls

balls with good honey, one of which give every night and morning, washing them down with a pint of the opening drink before directed.

On the recovery of the horse, if a fat one, to put in a rowel will not be amiss; at any rate he must have three or four mild purges given at proper distances, but should not be purged too much.

Of disorders of the stomach and bowels, and of the Lax and Scouring, with proper remedies prescribed to be used in any of these cases and how to treat the sick horse. When a horse voids quantities of greasy matter and slime, the following drench repeated every other day for three times will be found extremely beneficial in such cases.

Of sweet oil take four ounces, and rosin finely powdered one ounce, cream of tartar four ounces, and lenitive electuary four ounces and an half; mix these ingredients with a pint of warm water gruel for use.

When given twice a week with warm gruel and scalded bran, an alterative ball made in the following manner has without any other assistance effected a cure.

With the juice of Spanish liquorish make into a ball of a fit consistance, the following ingredients, viz. diapente one ounce, and the best succotrine aloes half an ounce, to which add a spoonful of amber oil, half an ounce of

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the beſt indian rhubarb, ſaffron one drachm, and myrrh one drachm and an half.

Whan a flux rages violently, diſſolve two ounces of roach allom, three ounces of bole, and two ounces of diaſcordium with the cordial ball, in two quarts of hartſhorn liquor, and give the horſe a pint of this reſtringent drink four times a day; if you add a pint of port wine it will be ſtill better.

A ſtrong decoction of oak bark, if given at the ſame time, will greatly aſſiſt the above remedies.

When the lax is attended with a fever, rhubarb and lenitive electuary ſhould be firſt given in the following proportions, viz. two ounces of lenitive electuary, and half an ounce of rhubarb; when this has done operating take a pint of red port wine, mull it with cinnamon, and then infuſe in it better than half an ounce of diaſcordium: give this drink the night after the working, and afterwards give the rhubarb and lenitive electuary ball once in three days, and the mull'd wine and diſcordium every day while requiſite.

When a horſe is tortured with griping, and his flanks look full and diſtended, it is an evident ſign that the diſtemper increaſes; in which caſe increaſe the quantity of diſcordium in his night drink to a full ounce, and throw up the following reſtringent clyſter:

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In two quarts of water boil pomegranates and baluſtines of each one ounce, of red or damask roſes near a handful, and camomile flowers a handful; let theſe boil until one quart of the water is waſted away; then ſtrain off, and in the liquor diſſolve three ounces of diaſcordium, and one ounce of mithridate, and throw it up with a pipe and bag.

A pint of port wine if added to the above receipt will prove beneficial.

For the bloody flux. The firſt ſymptoms of the diſorder are, the horſe's evacuating blood and appearing in great agonies, occaſioned by the ſevere gripings and excruciating pains he feels in his bowels; when this is the caſe, the following reſtringent clyſter will be of ſingular uſe:

In three quarts of forge water boil burnt hartſhorn three ounces, tormentil roots two ounces and a half, and oak bark four ounces; when the water has boli'd away to two quarts, ſtrain it and put to it opium half a drachm, ſtarch four ounces, and diaſcordium two ounces and a half, and uſe it.

The following reſtringent drink if given twice a day will alſo prove very ſerviceable:

Diſſolve in a pint of hartſhorn drink ſixty drops of liquid laudanum, indian root powdered half a drachm, mithridate an ounce,

and

and ſoft chalk two ounces, to which add four ounces of red wine.

The uſual drink of the horſe ſhould be gum arabic diſſolved in hartſhorn water.

Gentle openers ſhould always be given to horſes when they are coſtive, namely, lenitive electuary, glauber ſalts, or cream of tartar, in the following manner:

In a ſufficient quantity of warm freſh ale, diſſolve two ounces of cream of tartar, and the ſame quantity of lenetive electuary.

Or, Diſſolve in warm ale two ounces of glauber ſalts, and two ounces of lenitive electuary.

Theſe are excellent mild laxatives, and ſhould be given to coſtive horſes every morning.

Of the cholic or gripes, and pains in the bowels, occaſioned by ſudden accidents. The ſymptoms of a horſe's being afflicted with the flatulent or wind cholic, are his frequently lying down, and ſuddenly ſpringing up, ſtamping violently with his fore feet, ſtriking his belly with his hinder feet, and loathing his food; and when the malady rages with violence, he will be in convulſive agonies, his eyes ſometimes turn'd up, and ſometimes awry, his limbs extended as if he was breathing his laſt, and his feet will be one minute intolerably hot and the next as inſupportably cold; he alternatively falls into profuſe ſweats and cold damps,

damps, endeavours to ſtale but cannot, he then throws himſelf down, rolls on his back, and continnally turns his head towards his flanks. A ſtoppage of urine, always attends flatulent or windy cholic.

In this diſtemper the neck vein ſhould be opened and a proper quantity of blood taken away, eſpecially if it is a young horſe that is diſordered; the following remedies are alſo very ſerviceable in theſe caſes.

Take *ſalt of tartar two drachms, oil of juniper one drachm, ſal prunella one ounce, and venice turpentine one ounce; make theſe into a ball with ſyrup of buckthorn, and waſh it down with a decoction of juniper berries.*

If on giving this ball the horſe does not ſtale plentifully, give him a ſecond in an hour or two, with the addition of a drachm of ſalt of amber: the horſe ſhould be gently exerciſed during the fit.

The following clyſter is very uſeful in theſe caſes, and may be thrown up at proper intervals. *Boil in three quarts of water long pepper, half an ounce, camomile flowers two handfuls, fennel and corriander ſeeds of each an ounce and anniſeeds one ounce and an half; boil theſe until the quantity of water conſumes to two quarts, then add gin half a pint, and nil of camomile nine ounces*

The underneath is an excellent receipt for a ball to remove gripings which have

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been caused by taking cold after hard exercise, or drinking cold water when very hot:

Make into a ball with any proper syrup pellitory of Spain one drachm, camphor two drachms, cumin and fennel seeds of each half an ounce, and aniseeds one ounce. These seeds must be powder'd,

Or give the follo wing drink:

Take tincture of sena and sallad oil of each half a pint, and philonium one ounce and an half; repeat this if necessary, giving it moderately warm.

When the horse is inflammatory or bilious which is always accompanied with a fever, great heat, pantings, and the mouth is parched and dry, the horse stales scalding urine, and evacuates loose dung; when his water appears reddish or blackish, and has a fetid smell, a mortification is generally the result.

If this is the case, bleed the horse plentifully to the quantity of three quarts, and if the symptoms do not abate in a a few hours repeat it; also throw up an emollient clyster with two ounces of nitre dissolv'd in it. This may be done twice a day, which will cool the inflam'd bowels:

Gum arabic water should likewise be given and the following cooling purging drink:

In a quart of boiling water infuse three ounces of sena, half an ounce of salt of tartar; let these infuse

infuſe for two hours, then ſtrain it and add three ounces of glauber ſalts and two ounces of lenitive electuary.

If the diſorder proves irremovable by theſe remedies, you muſt give a ſtrong decoction of jeſuits bark, to the quantity of a pint every three hours, with a gill of red port wine and the following clyſter:

In a quart of ſtrong decoction of jeſuits bark put two ounces of venice turpentine diſſolved with the yolks of two eggs a pine of red wine and an ounce of diſaſcordium; if this has the deſired effect, and the horſe mends, two or three mild rhubarb purges muſt alſo be given him.

The dry cholic is diſcovered by the following ſymptoms, viz. the great reſtleſsneſs and uneaſineſs of the horſe, the very high colour of his urine, the frequent and quick motion of his tale, and the black colour of his dung.

In this caſe the diet of a horſe ſhould be ſcalded, warm water gruel, and for his common drink diſſolve four ounces of gum arabic in a quart of water and mix it with his water.

As to the cure of this diſtemper, the ſtrait gut muſt be rak'd, the emolient clyſter thrown up, and the purging drink given at proper intervals.

Of diſeaſes incident to the eyes of a horſe. In all external injuries which may happen to the eyes, ſuch as cuts, bites, blows, &c. when the caſe is recent and attended with a running and ſwelling in the eye-lid, ſponge the part often with warm verjuice or vlinegar; if the ſwelling is conſiderable, fail not bleeding him immediately, and the part poultic'd with the pulps of boil'd apples, carefully ſeperated frem their husks and ſeeds: conſerve of roſes mix'd with a ſmall quantity of bole, the white of an egg and a little vinegar, will on trial be found of ſervice.

The follow waſh, if applied when the ſwelling abates, will complete the cure.

Diſſolve in a pint of ſpring water half an ounce of compound peruſe, ſugar of lead two drachms, and white vitriol half an ounce; with this bathe five times a day.

Opening the veins under the eye when they are turgid, with a fine lancet, will be very ſerviceable.

In inflammations, if the horſe be fleſhy and of a groſs conſtitution, a rowel will be neceſſary and bleeding muſt be repeatedly performed; for ſome days he ſhould not get any oars, beans, &c. or any food which requires much chewing; therefore his diet ſhould be ſcalded barley or bran, and the cool, opening draught ſhould be given him once a day: if the eye-llds continue ſwelled and moiſt, bathe with the following waſh:

Diſſolve in three ouuces of ſpring water half a drachm of ſugar of lead, add a ſpoonful of red wine and an ounce of honey.

If a film or thick ſlough occaſioned by the inflammation grows over the eye; Take ſome glaſs and reduce it to a very fine powder, ſo fine that it will paſs or ſift thro' muſlin, and incorporate this with a ſufficient quantity of honey and butter; put the quantity of a pea into the eye once a day, and the film will wear of by degrees.

When the eyes are affected by the teeth, tha horſe ſhould be bled and the eye-water applied, with a rowel and a cooling purge.

In the wounds of the eye honey may be uſed alone, but if add a little myrrh to it, or ſugar of lead to it, it will be better, and likewiſe following the directions reſpecting inflamations.

When a cataract is forming, rowel and bleed the horſe, giving him two ounces every day of nitre nuade into a ball with honey; the part ſhould be bath'd with vinegar, and at other times with an infuſion of roſe leaves, to which a ſufficient quantity of ſugar of lead may be added; cooling phyſic ſhould alſo be given every third day.

When the eyes are ſunk and periſhing, foment them with the following: In a quart of lime water diſſolve four drachms of crude ſal armoniac

armoniac; to which add 8 ounces of brandy free from adulteration.

Proper Remedies for Colds. Take away better than two quarts of blood from the horſe; he muſt alſo be kept very warm, have feeds of ſcalded bran given him, and as much warm water as he can drink.

But if the diſorder inſtead of abating increaſes, the following remedies will perform the cure:

In a quart of boiling water infuſe two ounces and a half of anniſeeds, ſaffron one drachm and a half; then ſtrain off and diſſolve in it four ſpoonfuls of ſallad oil, four ounces of honey, and one ounce of ſyrup of capillaire.

Give this draught every night, or one of the following pectoral balls:

Take of flower of brimſtone, turmeric, carraway, anniſeed freſhly powdered, and elicampane each three ounces, a gill of mountain wine, powder'd ſaffron half an ounce, oil of anniſeed one ounce, ſallad oil and honey half a pound each; mix theſe well together and form into balls with a ſufficiency of wheat flower.

He ſhould likewiſe be warmly cloathed about the neck and throat, and have hot maſhes and warm water.

If the cold is attended with a fever, give him the quantity of three ounces of nitre every day in his ſeeds or drink; and if he is coſtive,

coſtive, his body muſt be kept open by diſſolving four ounces of cream of tartar in his firſt water in the morning, which muſt be repeated during the continuance of the coſtiveneſs.

For Horſes in fevers. Taking away two or three quarts of blood is the very firſt neceſſary operation, he ſhould likewiſe have an ounce of nitre made into a ball with honey, given him thricc a day, which muſt be waſhed down with ſome thin water gruel, or elſe give him the following drink four times a day:

Infuſe in two quarts of boiling water, nitre three ounces, liquerice root ſliced half an ounce, and camomile flowers, ſage and baum of each one handful; when cold ſtrain off and add to it a gill of lemon juice and ſweeten it with honey.

The diet of a horſe in a fever ſhould be ſcalded bran given in ſmall quantities, or dry bran ſlightly ſprinkled with water; pick'd hay ſhould alſo be put into his rack, his cloathing ſhould be moderately warm, and his water luke warm, which ſhould be often and in ſmall quantities.

If the fever is not abated by this treatment, bleed him again, repeat the drinks before ordered, and add to them two or three drachms of ſaffron, and throw up the following clyſter as often as you think it requiſite.

Boil

Boil in three quarts of water until they conſume to two, camomile flowers and marſh mallows two handfuls each, fennel ſeed one once, and baum one handful; when ſtrain'd off, put to it one pint of linſeed oil, and three ounces of treacle.

A good opening fever draught. Diſſolve in oatmeal water, cream of tartar three ounces, glauber ſalts four ounces, and lenitive electuary two ounces, and one dram of powder of jalap.

The ſymptoms of a compound fever is when the horſe is internally hot, and externally cold, and at other times hot all over, but is ſeldom, if ever extremely ſo; his mouth is conſtantly moiſt, and his eyes languid, drinks but little at a time, not caring for it; his ſtaling is irregular and in ſmall quantities, ſomerimes, at other times profuſe, and of a paliſh or rather light yellowiſh colour, his dung is always moiſt and ſoft, and he feeds with a ſeeming voraciouſneſs this minute, and the next quits it as if nauſeated.

In this caſe the horſe muſt be let blood, and repeated if neceſſary; proportion the quantity of blood taken away, to his ſtrength, fullneſs, &c. and then give him the following drink: Take one ounce of ſnake root, three drachms of ſaffron, one drachm of camphor diſſolved in rectified ſpirits of wine, nitre two ounces and an half, ſlic'd liquorice root half an ounce,

and

and baum, ſage, and camomile flowers one handful each; infuſe theſe ingredients in two quarts of boiling water, to which add a gill of white wine vinegar, and make it palateable with honey. Give him a pint at a time four times a day.

Horſes afflicted in this manner ſhould be kept to a regular uniform diet, they ſhould not have oats nor beans, but may have plenty of ſcalded, or (if they refuſe that) ſprinkled bran, and good hay given them; they ſhould alſo drink plentifully of blood warm water.

If the diſtemper ſtill continues, give the following compound fever balls.

Take mithridate half an ounce, ſaffron one ounce, ſaffron one drachm and a half, ſnake-ounce powder'd finely three drachms, and myrrh and contrayerva root each two ounces; make theſe into a ball with ſyrup of buck-thorn, and give one three times a day, till you ſee ſigns of amendment, waſhing them down with two or three horns of an infuſion of ſnake root, honey and vinegar, or lemon juice.

Diſſolve one drachm of camphor in one ounce of rectified ſpirit of wine, to which add a piot of diſtill'd warm vinegar, and two ounces of mithridate: of this infuſion give a pint every four or five hours.

If the horſe purges moderately, do not endeavour to ſuppreſs it, but rather encourage it;

it; on the other hand, if the horſe is coſtive you muſt ſtrive to remedy it, by throwing up ſome mild purging clyſters.

When a horſe grows feeble by a continuance of a purging, immediately add diſcordium to his drinks inſtead of the mithridate, and to the ſame quantity.

But if all theſe remedies prove ineffectual, and the horſe declines in his fleſh, if he entirely forſakes his meat, ſwells about the joints, becomes hide bound, his eyes appearing fixed and dead, his tail raiſed and trembling, his breath ſtrong and bad ſcented, and he avacuates a fœtid dirt coloured dung or matter.

When a horſe recovers, let his diet be very light and his feeds ſmall, gradually and proportionably increaſing their quantity as he gathers ſtrength.

When a horſe is in a fever, the head and throat ſhould be kept very warm.

Of the glanders. The only remedies that nan be ſervice of this diſtemper, are thoſe which I have preſcribed for colds, and thoſe which I ſhall direct for the ſtrangles.

For diſorders in the bladder and kidneys. When a horſe is diſordered in his kidneys, bleed him plentifully, which prevents inflammations, if a fever attends the afflicted horſe, throw down the following balls three times a day,

day, with better than a pint of the decoction of marsh mallows. In the decoction dissolve honey 1 ounce, and gum arabic 6 drachms.

Take nitre or sal prunella half an ounce, sparmaceti one drachms, lucatilli's balsam one ounce, and japan earth half an ounce; make these ingredients into a ball with a sufficiency of honey.

If the horse still continues to stale with difculty, give the following diuretic ball:

Make into a ball with a sufficient quantity of honey, the following ingredients; powder'd myrrh three drachms, nitre six drachms, venice soap one ounce, and Strasburgh turpentine one ounce and an half: to wash down use the marsh mallows decoction with a gill of holland geneva added to every quart, instead of dissolving the gum arabic in it as directed before, but the honey must be continued.

If the suppression of urine arises from an inflammation of the parts, give the following stimulating diuretic balls once in every five hours.

Take oil of juniper three drachms, camphor one drachm, oil of turpentine one ounce, sal prunella six drachms, and juniper berries finely powder'd one ounce; make these into proper sized balls with honey, which wash down with four horns of the marsh mallow decoction prepared as last directed.

As

As to external remedies for the removal of this complaint, the horſe's veins ſhould be rub'd with a mixture of oil of turpentine and oil of amber, a poultice of horſe rhadiſh, muſtard ſeed, green ſoap, and garlic laid over them: the horſe ſhould alſo have 3 drachms of calomel given him over night, and a gentle purge next morning.

A diabetes of a long continuance in old feeble horſes is incurable; but in young ones the following drink I have found by repeated trials of its efficacy, to be very ſerviceable in this caſe:

In two gallons of lime water boil jeſuits bark four ounces, tormentil and biſiort root of each two ounces; when the water has conſumed by boiling half its quantity, it is fit for uſe.

Of this drink give three pints a day at ſeperatate times.

A ſtrong allum poſſet to the quantity of a quart at a time, given three times a day, will be very beneficial ſhould the above fail.

For the diſorder called Molten Greaſe. Bleed the horſe plentifully, and repeat the bleeding for two or three days in a larger or ſmaller quantity, as the urgency of the ſymptoms may require; two or three rowels ſhould be put in as ſoon as poſſible, and a cooling emollient clyſter thrown up three times a day. You ſhould alſo give every morning and even-

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ing an ounce and a half of cream of tartar diſſolved in a decoction of turnips and linſeed till you perceive the fever abates; a couple of gentle purges, compoſed of lenitive electuary and glauber ſalts muſt be given.

Of the Vives and Stangles. When accompanied with a fever, oatmeal water with an ounce of nitre or better muſt be given him twice a day, maſhes of barley or ſcalded bran ſhould alſo be given, and clyſters thrown up at intervals, but he ſhould not be bled, except the fever runs high and the ſwelling ſeems to portend a ſuffocation; in this caſe bleeding moderately is very adviſeable, and the ſwelling muſt be poultic'd, till a ſuppuration enſues, then it muſt be nicely opened and afterwards ſpread over with the following ointment.

Mix and make into an ointment birtwort and ginger one ounce each, roſin four ounces, oil half a pound, bees wax one quarter of a pound, and linſeed reduced to a fine powder half a pound, to theſe add leaf tobacco half a pound; this laſt muſt be firſt boiled in a quart or three pints of red wine, until half that quantity is conſumed.

If this diſtemper is attended with a running at the noſe, which may bring on the glanders if it continues too long; a pint of the following drink given night and morning will be of ſervice.

Boil in ſix quarts of lime water until one third part or better is waſted, the following ingredients : ſnake weed and tormentil four ounces each, ſhepherds purſe two handfuls, guiacum woods, ſhavings of hartſhorn, and pomegranate bark, or oak bark eight ounces each, then ſtrain off for uſe.

When the horſe is upon the recovery, the ſalt marſh muſt be uſed for a month. If the ſalt marſh lies at too great a diſtance, give him half an ounce of the following mixture once a day for a fortnight :

A ſufficient quantity of properly prepared antimony, ſulphur, linſeed powder'd and fenigreek.

Of an Aſthma, with directions how to treat Horſes in that manner. Bleeding is neceſſary in this diſtemper and moderate exerciſe, and feeding and watering the horſe ſparingly ; when the cough is very ſevere a vein muſt be immediately opened ; he ſhould alſo have given him once a day in his corn half an ounce a day in his corn half an ounce of liver of antimony and ſulphur, and if he is very coſtive, gentle purging clyſters muſt be thrown up at proper intervals.

Of the diſeaſe known by the name of the Farcy. Proper bleeding accompanied with exerciſe, in general performs the cure ; but in caſe this proves ineffectual, and the corded veins will not ſubſide by this treatment, but

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the lumps increaſe faſt, circle them round with a red hot inſtrument fit for the purpoſe of cauterizing; when this is done, dreſs the puſtules with oil of vitriol, and after proper bleeding give him the following drink for 4 mornings:

Boil in three pints of urine until half is conſum'd dodder of rhyme two handfuls, dry or green celandine and rue one handful each; then ſtrain and add tutty half an ounce, cream of tartar, armenian bole, and factitious cinnabar one ounce each, and lapis calaminaris ounce.

This muſt be given faſting for two mornings running, and every other morning for two more, nor muſt the horſe get any food for four hours after he takes it; when you have treated him in this manner, throw liver of antimony mix'd with ſulphur and fennugreek in his feeds of corn.

After this management ſhould there remain any farcical ſwellings on his joints bathe them until they ſubſide with this mixture once or twice every day, as you ſee neceſſary:

Diſſolve in two ounces of ſpirits of wine, of bole armoniac one ounce, camphor half an ounce, oil of turpentine three ounces, oil of vitriol two ounces, to which add of double-diſtili'd vinegar one pint.

What is commonly called a water farcy muſt be treated in the ſame manner for it pro-

ceeds likewiſe from a viſcidity and ſluggiſhneſs of the blood.

Of wind galls. As to the treatment of wind galls, reſtringents are neceſſary, but ſhould theſe prove of no uſe, an inciſion muſt be nicely made and the glutenous matter let out.

Then take beſilican pitch, roſin, tar, of each an equal quantity, melt all together, and make into an ointment with a ſufficiency of bees wax.

Of wounds in general. The lips of all freſh wounds ſhould be brought into contact by ſuture or by proper bandage, and ſhould the wound bleed much from a divided artery, you muſt ſtop it quickly by tying it up; or if you cannot get at the artery in this manner, apply ſome lint dipp'd in a ſtrong ſolution of blue vitriol or hot oil of turpentine, to the mouth of the bleeding veſſel, keep it there cloſely bandag'd till the bleeding is ſtop'd, and no danger of its burſting away.

As to the ſtitching up of wounds, one ſtitch is ſufficient for a wound two inches long, but in very large wounds which will require more, the ſtitches ſhould be a full inch from each other.

The following excellent green ointment will effectually cure any common wound.

Make into an ointment of a proper conſiſtence, the following ingredients, ſound birt-

wort

wort finely powder'd two ounces, rosin and bees wax four ounces each, hog's lard fourteen ounces, tobacco finely powder'd nine ounces, when strain'd off, add the remains of a quart of red wine, in which half a pound of leaf tobacco has been boiled until it consumes a pint.

Wounds in the legs, tendons or joints, must be dressed with balsamic applications without any greasy mixtures, for instance take the following, viz.

Mix up a sufficiency of tincture of myrrh, venice turpentice dissolv'd with the yolk of an egg and honey, of each an equal quantity.

In case of a fever, you must treat the horse in the same manner as you do in other fevers in the chapter on fevers; I have expatiated sufficiently on that subject.

In gun-shot wounds, the ball must be extracted if it can be fetched away without too great a disturbance of the parts, the wound should afterwards be dressed with the old digestion of venice or common turpentine divided with the yolks of eggs, to which you may add some honey and tincture of myrrh.

When a horse is scalded or burned by gunpowder and the skin is separated, anoint the part with linseed oil, and apply a plaister of bees wax and oil; if blobs of hot water or humour are underneath the skin, dress the wound with the wound ointment, and oil of turpen-

tine, if the horſe is feveriſh bleed him, and throw up cooling clyſters, and treat him as I have ordered in ſimple fevers; when the ſkin is unbroke, keep it bathed with camphorated ſpirits of wine and ſalt bandag'd on the part affected: here I muſt obſerve, that all ſaline and ſpiritous applications are beſt when the ſkin remains intire.

Of Splets, Curbs, Bone-ſpavins, and Ring-bones. When a ſplent is the caſe, and that it occaſions a lamneſs, otherwiſe it will be adviſeable not to tamper with it; let the hair be clipt off and after beating it with a blood ſtick, rub it well with the following ointment:

Take ſublimate in fine powder and Spaniſh flies, powder'd half a drachm each, tincture of euphoribium forty drops, oil of origane one ounce and an half, and nerve ointment one ounce.

No kind of aſtringent remedies can be of any ſervice in bone-ſpavins and ring-bones; cauſtics, are alſo are very pernicious, therefore firing and bliſtering immediately are all that is requiſite.

Curbs are cured, or at leaſt remedied by the ſame method of treatment as ſplents, ſhould that proceſs prove ineffectual, firing is the only remedy.

Of a Pleuriſy and Inflammation of the Lungs. The ſymtomps of a pleuriſy are almoſt exact-

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ly ſimilar to thoſe which a horſe ſhews when troubled with the gripes, but with this difference, in a pleuriſy the ears and feet of a horſe are always very hot, his pulſe very quick, and his fever continually increaſing.

In an inflammation of the lungs, many are attended with a ſtrong fever and a ſhort cough.

To remedy a horſe in both theſe diſtempers he muſt loſe three quarts of blood the firſt bleeding, and the next day two quarts more, if after this treatment, the ſymptoms do not diminiſh, repeat the bleeding: put rowels in at each ſide of the breaſt; take away a quart of blood at a time, and that frequently.

The following pectoral balls ſhould alſo be given him thrice a day, waſh'd down with barley water:

Make into a ball, with a ſufficiency of honey, ſparmaceti and nitre one ounce each, and oil of anniſeed forty drops.

Immediately after he has taken the balls, give him a pint of the decoction of barley water, figs, liquorice root, and juice of lemons; with this decoction you may alſo waſh down the balls.

Emollient clyſters ſhould alſo be injected at proper intervals, with an addition of cream of tartar.

When the lungs are oppreſs'd with a ſhort cough, three or four horns of the decoction may

may be given 4 time times a day, mixed with four ſpoonfuls of honey and linſeed oil; the quantity of four pints a day a ſtrong decoction of rattle ſnake root, ſweeten'd with honey may alſo be given, which will attenuate the blood and lend a great help towards diſperſing the inflammation.

Of a Conſumption. The firſt and principal ſtep to be taken towards a cure is bleeding frequently, but in ſmall quantities at a time, and whenever the breath ſems much oppreſſed: this muſt be repeated, the quantity of a pint of blood will be fully ſufficient to take away at a time.

The whole ſtreſs of the cure lies on mercurial purges, and the following alterative powders muſt be given intermediately to the quantity of an ounce a day:

Take cinnabar of antimony finely powder'd one pound, and gum guiacum and nitre powder'd one pound each; mix theſe well together for uſe.

Of a Diſorder call'd the Staggers. In this diſorder, the beſt method of proceeding is to open two or three veins at once, and thereby diſcharge at leaſt four quarts or blood immediately; this expedient (except where the convulſions are very ſtrong) will perform a compleat cure.

When ſtrong convulſions render the diſeaſe more difficult, a rowel in the jaw, and one

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under the breaſt will prove of infinite ſervice, and the horſe ſhould alſo be bled in the mouth.

The following inimitable compoſition will alſo be very uſeful, a pint of which ſhould be given every three hours:

Boil ſlowly in a gallon of forge water, till one quarter is waſted away, the following ingredients, viz.

Penniroyal and roſemary, of each one handful, miletoe two handfuls, wild valerian two handfuls, and rue a handful, then ſtrain off, and add of opium a drachmn, and aſſa fœtida four drachms.

Of the running thruſh and canker, In a running thruſh the only care neceſſary is to keep the feet clean and frequently waſhed; but ſhould it riſe to an impoſthume, you muſt open it and bathe the ſore with a ſtrong ſolution of vitriol in water, at the ſame time bleed the horſe and give one or two of the diuretic balls preſcribed for the greaſe.

When a canker is the caſe. carefully pare away all the funguous fleſh and apply pledgets of tow ſteeped in the following ointment.

Mix well together ſublimate two drachms, double ſpirit of nitre half an ounce, verdigreaſe finely powdered one ounce, and one pound of honey.

Of accidental wounds in the feet, and diſeaſes incident to thoſe parts. When a nail or any in-

injurious body is lodged in the foot, it muſt be firſt extracted, and then the wound waſhed with oil of turpentine; afterwards pour into it a mixture of turpentine, melted pitch and tar, then fill up the foot with bran moiſtened with oil of turpentine; if this proceſs proves uſeleſs, the wound muſt be laid open to the bottom, and dreſſed with the tincture of myrrh, and afterwards with a detergent medicine.

When cuts in the feet are the caſe, waſh them directly with brandy, and apply a proper ointment, but I recommend as the moſt expeditious remedy, the pounding of nettles and ſalt well together in a marble mortar, and then binding this poultice on the part affected.

As to bruiſed feet nothing more can be done with with reſpect to them, than to ſtuff them with a mixture of ſoft ſoap, chamber lye and linſeed oil boil'd together, and made properly thick with hogs or cows dung.

When a horſe has naturally ſoft feet, they muſt be kept as dry as poſſible; no more can be done, for any attemps to make them harder will only help to lame the horſe: hard and brittle hoofs ſhould be kept moiſt by frequently filling them with either of the dungs above mentioned, and ſhould alſo be frequently rubb'd with the following ointment:

Melt well together tar and train oil, of each one

one pound, venice turpentine and bees wax of each two pounds, and nerve oil ſix pounds.

As to diſeaſes incident to the feet, ſand cracks are either occaſioned by treads or blows; they are a ſmall clift on the outſide of the hoofs, and when they run through the ligaments that unite the hoof with the coronet, they are apt to breed a quitter which is very dangerous, but when the crack only penetrated through the hoof without any matter bing formed underneath, it admits of an eaſy cure, which muſt be ſet about in this manner:

In the firſt place pare the edges of the crack ſkin, then dreſs it with the tincture of myrrh, afterwards put on the following mixture, and over it a bandage tyed very tight:

Blend well together till you make a proper ointment the following ingredient of each a ſufficient quantity, viz. bees wax, venice or ſtraſburgh turpentine, and deer's ſuet.

But if the crack is very deep, and matter formed underneath, it will be abſolutely neceſſary to fire it and to apply a ſtrong charge, and then to turn the horſe out to graſs for three or four months.

Quitters are ulcers formed between the hair and the hoof of the horſe, and uſually on the inſide of the quarter; it generally proceeds from treads and bruiſes, and ſometimes from gravel, which by working its way upwards

wards lodges about the coronet; if it be only superficial it may be cured by the preceeding ointment.

But should there be a matter formed under the hoof, part of the hoof must be carefully pared away, and all the funguous flesh cut out; and if the bone is carious, it must be scraped clean, and the ulcer dressed with the same medicines and treated in the same manner as the canker.

PART IV.

The Gardener's Kalendar,

How to order the Orchard, Kitchen and Flower Garden.

JANUARY.

LAY the roots of your fruit trees bare, and if the weather prove open lay good dung therein. Gather your cions for grafts, before the buds come out, and cleanſe your trees from moſs; plant quick ſets, tranſplant young fruit trees, and towards the decreaſe of the moon prune the old ones, ſet young, and prune your old vines, begin to prune and nail your wall fruit; ſet peas and beans, ſow lettuce, chervil, ſpinnage, radiſh and other ſallading in hot beds; turn up your bee-hives, and ſprinkle then with a little warm and ſweet wort.

Flower Garden.

Be careful to preſerve your beſt gilliflowers, auriculas, anemones and ranunculas from too much wet, froſt or ſnow; as likewiſe your carnations and ſuch ſeeds as are liable either to be waſh'd away, or over chill'd by the ſnows laying too thick, be careful to cover. About the middle of this month, 'tis neceſſary that you plant your anemone roots and ranunculas; keep your conſervatory where your greens and tender plants are kept ſhut cloſe, having convenient avenues for the ſun to ſhine therein, and if it freeze extremely keep a ſmall charcoal fire therein. Set traps for vermin, and towards the end of the month earth up with freſh and light mould the roots of ſuch auriculas as has been uncovered by the froſt.

FEBRUARY.

Orchard and Kitchen Garden.

Begin to graft apples, pears, plumbs and cherries, cover the roots of thoſe fruit trees left bare the laſt month and prune ſuch of your fruit trees and vines as could not be done then, for now is the moſt proper time to bind, plaith, nail and dreſs, being leſs ſubject to froſt, be ſtill cleanſing your trees of moſs and webs, of caterpillars from the tops of twigs,

twigs, plants, vines, &c. Sow kernels of all sorts and stony seeds, also sow and set all sorts of asparagus, radish, corn sallads, parsnips, carrots, onions, garlick, marygolds, &c. plant cabbage plants, potatoes, parsly, spinnage and pot herbs, steep melon and cucumber seeds in new milk twenty four hours, and sow them in a hot-bed, keeping it cover'd up till they appear, and then uncover it in clear and sunshine weather, observing to cover them again at night, still keeping close your conservatory, watering the roots of your lemon and orange trees, &c. with water wherein dung of sheep has been steep'd in the air for three or four days, taking great care not to wet the leaves, left you destroy the plants.

Flower Garden.

Secure your choice flowers in beds, with tiles as soon as they appear above ground, air your hous'd carnations on warm days, and mild showers, setting them in again at night, sow auricula seeds in good mellow earth, plant antemones for latter flowers, sow lark spurs, &c. plant your boxes with seeds therein of a choice nature where they may be secured from sharp winds and violent rains.

Orchard and Kitchen Garden.

Graft all this month, unless the spring prove extraordinary forward, taking great heed to

graft your cion on that ſide of the ſtock which is left expoſed to the ſouth wind, and be careful that the rain get not in the clefts of your young grafted ſtocks, ſtake and bind up weak ſhrubs and plants. Plant peach and nectarines early, not cutting off the top roots as in other trees, prune laſt year's grafts and cut off the heads of your budded ſtocks, top your roſe trees near a leaf bud with your knife, cutting alſo the dead withered branches, ſlip and ſet ſage, thyme, roſemary, lavender, &c. Sow endive, ſuccary, leeks, radiſh beets, parſnips, parſly, ſorrel, ſkirrets, buglos, burrage, chervil, ſellary, ſmallage, alliſanders, &c. In the beginning of the month ſow alſo lettuce, onions, garlick, purſlain, turnips, carrots, cabbages, peas, creſſes, fennel and marjoram; tranſplant medicinal herbs, cover your melon plants with glaſs 'till you remove them ſtring your ſtrawberry beds, and uncover aſparagus which you may now tranſplant to new beds. By this time the bees ſit, therefore 'tis neceſſary to keep them cloſe night and morning, if the weather prove foul.

Flower Garden.

Plant box for borders. Sow pinks, ſweet williams, carnations, wall and ſtock gilliflowers, french honeyſuckles, primroſes, larkſpurs, Indian ſcabios, &c. On your hot beds ſow African marigolds, aramanthus, naſturtium

tum indicam, the ſenſible and humble plants the African and naſturtiom indicum will come up in a cold bed, in the middle of the month tranſplant gilliflowers and fibrous rooted plants, new earthing up thoſe unremoving. Cover your choiceſt tulips; ſow ſtock gilliflowers at the full moon, to produce double flowers, and at the latter end of the month if the weather be not to cold, open the windows of your conſervatory, which by degrees will harden your greens to bear the air.

APRIL.

Orchard and Kitchen Garden.

Sow ſweet marjoram, hyſſop, baſil, thyme, winter ſavory ſcurvy graſs, lettuce, purſlain, gilliflowers, radiſhes, marigolds, &c. Set ſlips of artichokes, lavender, thyme, penny-royal, ſage, roſemary, &c. Set French beans and ſow turnips towards the middle of the month; begin to plant forth your melons and cucumbers, gather up worms and ſnails (at all times) after the evening ſhowers, open your bee-hives, for now they hatch, look careful to them and prepare hives, &c.

Flower Garden.

Continue hot-beds for ſuch exotic plants as will not arrive to perfection without them, 'till the air and common earth be endowed

with ſufficient heat, to preſerve them abroad. Tranſplant ſuch fibrous roots as you had not finiſhed in March, ſuch as violets, hepatica, primroſes, &c. Shelter your ſeeding auriculas from the ſun, take your Indian tube roſes, parting the off-ſets carefully, leſt you break their fangs, then put them in natural, not forced earth, placing a layer of rich mould beneath and about the natural earth, which will nouriſh the fibres, but not to touch the buds, then plunge your pot into a hot bed of a moderate warmth, giving them no water till they ſpring, then ſet them under a ſouth wall, watering them freely in dry weather, and expect incomparable ſhower in Auguſt. Set out flos cardinalis, ſlip and ſet marums, water anemones, ranunculas and plants in pots once in two or three days, if the draught requires it, obſerving to preſerve them from ſtorms of rain and hail. In fair weather you may venture to expoſe ſome of your tender ſhrubs, exceepting oranges, which muſt be left in till next month: you may now graft oranges, lemons, pomgranets, jeſſamines, &c. Mow carpet walks, and forget not to weed hoe.

M A Y.

Orchard and Kitchen Garden.

If you find your buds ready, you may inoculate; ſow purſlain to have it young, let-

tuce,

tuce, large ſided cabbage, &c. Look carefully to your melons, and towards the end of the month uncover them, ſet your bees at liberty, and expect ſwarms.

Flower Gardens.

Bring your oranges forth, tranſplant and remove them; tranſplant amaranthus, flos africanus, narſturtium indicum, miribilia, peruvians, &c. from your hot beds in good rich ſoil, as much as may be in the ſun; give all your houſed plants which you do not remove, freſh earth at the top, looſening the reſt with a forth; take great care that you hurt not the roots, and be ſure to cleanſe them from the duſt they have contracted in the conſervatory. Plant your ſtock gill flowers in beds at full moon, ſhading them, after midday, as alſo your carnations, gather anemone ſeed as the dew riſes, and preſerve them dry. Cut the ſtalks of all bulbous roots you find too dry. Sow hot and aramatic herbs.

JUNE.

Orchard and Kitchen Garden.

Cleanſe vines of exuberant branches and tendrels, ſtopping the joint. Innoculate peaches, apricots, and plumbs, apples, &c. Gather herbs at the full of the moon to keep dry, ſow lettuce, chervil, radiſh, &c. Diſtil

aro-

aromatic plants. Look to your bees for swarms and casts. Destroy insects, &c.

Flower Garden.

Transplant autumnal cyclamens, take up iris chalcedon. gather the ripest seeds of the choice and preserve them dry. Take up your tulips and ranunculas the stalks being withered after rain, and dry the roots well. Lay gilliflowers, which will take root in six weeks, and be ready to transplant into a light loomy earth, you may plant six or seven in a pot, but be careful to keep them from too much rain. Slips of myrtle set in a cool and moist place, do at this time frequently take root; such gilliflowers are now blown, save for seed, letting them have but a few layers to nourish, and but few buds; be careful to save none for this purpose that break their pods, preserving them wet as much as possible.

JULY.

Orchard and Kitchen Garden.

Water your planted trees and layers, prune apricots and peaches, saving as many of the youngest and most promising shoots as are well placed, cleanse wall-fruit from superfluous leaves, stop the exuberant shoots of vines at the second joint, remove your large sided cabbages planted in May, to head in autumn.

autumn ; let ſuch garden herbs as you would ſave run to ſeed. Sow latter peas, lettuce, chervil, &c. for young ſallading ; keep weeds from running to ſeed, and being to hoe ; gathe ſnails that infeſt wall fruit, but pull not off the bitten fruit, for then they will begin with others ; ſtraiten the entrance of beehives, and aſſiſt them in killing drones, waſps, &c. by ſetting glaſſes of beer mingled with honey for them.

Flower Garden.

Slip ſtocks and other lignous plants and flowers, from henceforth to Michaelmas ; you may lay gilliflowers and carnations for increaſe, you may alſo lay laurels, myrtles, jeſſamines and other greens. Clip box after rain, water your planted ſhrubs and layers. Take up early your autumnal clynamens and tranſplant them, gather early their ſeeds, and ſow them preſently in pots. At the latter end of the month, ſift your beds for off-ſets of tulips, anemonies, and ranunculuſſes ; you may alſo ſow anemony ſeeds, keeping them tolerable moiſt.

AUGUST.

Orchard and Kitchen Garden.

Inoculate early, if you began not ſooner. Prune off all ſuperfluous brants and ſhoots of the

the second spring, pull up the suckers, clip roses that have now done bearing. Sow colliflowers and cabbages for winter plants, corn sallad, lettuce, marygolds, carrots, parsnips, turnips, spinnage, onions, curld endive, angelica, scurvy gras and such plants as will endure winter, pull up ripe onions and garlick, transplant such lettuce as you would have abide all winter. Gather olitary seeds, and clip and cut all such herbs and plants before full moon, within a handful of the ground.

Flower Garden.

Gather seeds of shrubs which you find ripe. Now is the seaſon for orange trees to bud, inoculate therefore at the beginning of this month, take up balb roots of lillies, &c. dry them and lay them up; plant anemones to have flowers all winter, now earth your pots of auriculas, transplant and divide their roots into a light rich earth, sow larkſheal, columbines, iron coloured fox gloves, hollihocks, &c. About Bartholomew-tide is the only ſecure seaſon to remove and lay your perrenial greens, oranges, lemons, myrtles, phelereas, olianders, jeſſamines, arbutus and other rare ſhrubs, as pomgranates and whatever, is ſubject to be injured by froſt.

SEP-

SEPTEMBER.

Orchard and Kitchen-garden.

In dry weather, gather ſuch winter fruits as are ripe, and daily pick up the windfalls; if you mean to preſerve them, releaſe inoculated buds. Sow lettuce, radiſh, cabbage, ſpinnage and colliflower ſeeds, winter herbs and roots. Tranſplant moſt eating and phyſical plants; plant ſtrawberries from the wood, and earth up your winter plants and ſallads, ſet fourth your cabbages and colliflowers that were ſet in Auguſt. Take up your bees and ſtraighten the entrance of ſuch hives as you leave.

Flower Garden.

Sow auriculas, crocuſes, &c. Stake your autumnal flowers and plants; take up your gilliflowers earth and all, which plant in pots or ſhady borders. About Michaelmas if the weather be fair and not foggy, retire your choice of greens and rareſt plants, being dry, into your conſervatory, ordering them with freſh mould, taking away ſome of the uppermoſt, and ſtirring up the reſt. Fill the caſes with rich and well digeſted ſoil, leaving the doors and windows ſtill open, and giving them much air, ſo that the winds are not

ſharp

ſharp and the air foggy, ſhut them up by degrees: as the myrtle will endure abroad near a month longer, ſet ſuch plants as will not endure houſe, into the earth abroad, pots and all full three inches beneath the ſurface of the earth, covering them with glaſſes well cloathed with ſweet and dry moſs, but upon warm days and gentle ſhowers uncover them.

OCTOBER.

Orchard and Kitchen-garden.

Trench ground, plant and tranſplant all ſorts of fruits trees, having loſt their leaves, and that ſo ſoon as they fall, but take no trees for the wall of above two years grafting, lay bare the roots of old, unthrifty, or overhaſty blooming trees, gather your remaining fruit, the weather being dry, in the decreaſe of the moon. Plant and quaſh quickſets, remove grafts after the ſecond year, except dwarfs which may ſtand till the third. Set fruit ſtones three inches deep, the ſharp end uppermoſt, cover them with fern or ſtraw, which take off at ſpring; you may yet ſow Genoa luttuce and radiſhes which will laſt all winter.

Flower Garden.

Houſe your hyacinthus tube roſe, you may continue ſewing as laſt month, plant ſome anemones

anemones and ranunculas, which beſure cover from froſt, but give them air at all temperate intervals, remove your gilliflowers from much rain; all ſorts of bulbous roots may be now buried. Beat, roll and mow carpet walks and camomile, finiſh your laſt weeding.

NOVEMBER.

Orchard and Kitchen Garden.

Plant young ſtandard and wall-trees; furniſh your nurſery with ſtocks to graft on the following year; continue to ſet and tranſplant ſet trees; turn your melon ground, mixing ing it with rich earth, and lay it in ridges againſt ſpring. Trench ground for artichokes, ſew and ſet peas and beans, lay up in cellars carrots, turnips, parſnips, cabbages, &c. For ſeed on ſpending, crop aſparagus, covering it with dung, and make beds to plant in ſpring, take up potatoes for winter ſpending.

Flower Garden.

Sow auricula ſeeds, plant fibrous roots, roſes, althea frutex, ſyringas, peonies, &c. if the weather require it, quite incloſe the tender plaints, in your conſervitory, and if the froſt is ſevere, kindle ſome charcoal, which when done ſmoaking, put in a hole,

in the middle of the floor, when the ſun ſhines you may expoſe them through a glaſs, but be careful to incloſe them before the ſun leaves them, otherwiſe they will ſuſtain damage; be very ſparing to water them, unleſs they become dry and it doth not freeze, you may with care refreſh them with a little water mingled with ſheep's or cow's dung, be ſure never to beſtow any water on your aloes or ſedums all the winter, but ſhould they become dry to an extreme you may ſet them to air on a fair day. Plant foreſt trees for walks in this month, and they ſhall thrive.

DECEMBER.

Orchard and Kitchen Garden.

Plant vines and ſtocks for grafting, prune and nail wall fruit (or if you pleaſe may defer it a month or two longer) and ſtandard trees, ſet all ſorts of kernels, ſtones, &c. as in the laſt month, trench ground and dung it for borders, &c. Turn and refreſh autumnal fruit.

Flower Garden.

Set traps for vermin, preſerve your anemones, &c. from too much rain, or violent froſts; keep the doors and windows of your conſervatory well opened; in open weather

ſet

ſet your ranunculas in a bed of rotten thatch, or ſtraw with good mould above and below, you may alſo ſet your beſt anemones in a little rich loomy earth, ſifted through a wire ſieve. Preſerve your fountain pipes from cracking by froſt, in covering them with warm horſe litter.

Directions for Pruning.

When a tree has produced two well diſpoſed branches with ſome weak ones intermixed, they ſhould be ſhortened, equally to the length of five or ſix inches; and if the poſition of the two branches be irregular, there muſt be only one left to begin the formation of your tree.

A tree will ſometimes ſhoot, five, ſix, or ſeven branches, the firſt year; when this happens, three or four only of the beſt branches are to be preſerved.

A multitude of branches in the firſt year, is not always a ſign of vigour; for they ſometimes prove weak, occaſioned by the infirmity of the roots: in pruning, generally a vigorous tree cannot have too many branches, if they are well diſpoſed, nor a weak one too few.

The ſap of all trees muſt be kept within due bounds, and a greater liberty is to be allowed to ſtrong trees than to weak ones; for which reaſon ſtrong and vigorous branches are

left of a greater length than feeble ones : and it is beſt to prune weak, ſickly trees early, that the ſap may not be too much waſted.

In the pruning of wall fruit trees, all branches ſhooting directly forward are to be cut off cloſe to the branch they ſpring from ; and the utmoſt care muſt be taken to prevent their being too much crouded with wood, it being often neceſſary to take off even bearing branches, to preſerve your trees in beauty and health ; for it is impoſſible too great a number of branches ſhould be ſupplied with juices as they ought ; and if they are not, either the bloſſoms will drop off, or the fruit will never ripen.

You ſhould ever be careful to preſerve a convenient ſpace between one branch and another in all prunings ; alſo that one branch does not croſs another, which offends the ſight, unleſs it be to cover a ſpace in the wall, which looks ſtill more diſagreeable ; a ſlender bearing branch may, notwithſtanding, ſometimes be permitted to ſteal behind the main body of the tree, and be no offence to the eye.

That a tree may be the better diſpoſed to bear fruit, the branches ſhould be carried horizontally as much as poſſible ; for the more perpendicular the branches of a tree are led, the more they are inclined to run into great wood and barrenneſs.

Small

Small weak branches, ſhooting from the like, ſhould be cut away, as ſhould all ſhoots put forth in autumn.

When an old tree ſhoots ſtronger branches towards the bottom than the top, and the top is ſickly, it muſt be cut off, and a new figure formed from the lower branches; but if the top be in good health, you muſt cut off the lower ones, unleſs it be a few that are well placed.

Where old trees are in a weak condition, to preſerve them, they are to be diſburthened totally, leaving a few branches only ſhortened to five or ſix inches.

Having thus laid down the principal rules for pruning in general, I now come to the management of the peach, and other fruit trees in particular.

Among a number of peach trees, it is eaſy to diſcover ſuch as are proper for your purpoſe, it being, after two or three years planting, ſo apt to put forth its bearing branches.

When peach treſs are vigorous, it is beſt to defer the firſt pruning till they are ready to bloſſom, when you may be at a certainty in preſerving thoſe branches which are moſt promiſing of fruit, and then to ſhorten them as they require.

You may ſoon diſcover the fruit-bearing branches by their ſwelling buds, and you ſhould reduce them to the length of five or

ſix inches; the laſt year's ſhoots may be left ten or twelve inches long.

In the ſpace of about three years, all the wood muſt, at ſeveral prunings, be taken away; but in the mean time the wall is to be furniſhed with other wood.

When you have reduced your tree to beauty and order, you have little to do but thinning your fruit till Midſummer, when the ſhoots are to be ſhortened and faſtened to the wall, giving the fruit the advantage of the ſun as much as poſſible.

If the peach tree makes over haſte in its bearing; 'tis a ſign of infirmity, and muſt be managed, by pruning the branches ſhort, and plucking off moſt of the bloſſoms or fruit; which it is much leſs difficult to do when a peach is over vigorous, for then nature is apt to make a confuſion, which requires the greateſt ſkill to know what branches are fit to be choſen, and what rejected.

The peach tree requires a ſecond, and ſometimes a third pruning; the laſt of which is to be performed about the middle of May, or in June or July.

The apricot and nectarine may be pruned in the ſame manner as the peach; but then it ſhould be obſerved, that the apricot is more apt to run to wood than any other of theſe kind of wall-fruit trees.

Directions for Grafting.

The uſual ways of grafting are, in the cleft—in the bark—by approach, and whip-grafting.

Grafting in the cleft, or ſlip-grafting, is performed on the cherry, pear, and plumb-ſtocks, in the manner following:

When you have chſen a ſtock, in a ſmooth place, cut off the head of it, ſloping; then, with your knife make the top horizontally even; which being done, make a ſlit of near two inches deep down the middle of the ſtock; in which fix a cyon, ſloped on each ſide from a bud, and cloſing the bark of both exactly, tie them round with oaſs.

When you have thus finiſhed your grafting, put a quantity of clay and horſe dung, tempered together, round the ſtock and lower part of the cyon, in doing which, be careful not to diſturb the latter.

Grafting in the bark is generally performed only on apples, by cutting the head of the the ſtock as already directed; but inſtead of ſlitting it, ſlit only the bark a little above an inch on the ſouth weſt ſide, or as long as the ſloped part of the cyon; then looſening the top of the bark with your knife, put in the

the cyon (being prepared with a flat rope about an inch long, ending in a point, and begun from the back-side of an eye; and closing it as above, cover it also in the same manner with clay.

When either an apple, pear, plum, or cherry-tree, wants a branch to make the tree uniform, a graft may be put into the side without cutting the head of it.

Grafting by approach, or inarching, is performed when a stock grows so near another tree, the fruit of which you would propagate, that it may be joined with a branch of that tree, by cutting the sides of the branch and stock about three inches long, and fitting them, that the passages of the sap may meet; in which posture let them be bound and then clayed.

When they are well cemented, cut off the head of the stock about four inches above the binding; and in March following, having cut off the stub that was left of the stock, and the cyon underneath, close the grafted place, that you may be certain it will subsist by the stock only.

This manner of grafting agrees best with vines, pomegranates, oranges, and such like shrubs.

When the stock and cyon are of the same bigness, the operation of whipping is performed,

formed, by ſloping the ſtock and cyon much about an inch, ſo as to make them fit, and then tying them together, and claying the place.

A COLLECTION of RECEIPTS.

To make ENGLISH WINES.

To make Orange Wine.

TAKE ten gallons of water, and twenty pounds of ſugar, boil it half an hour, ſkimming all the time; have ready the peels of an hundred oranges in a tub, ſo thin pared that no white does appear; then pour on your boiling liquor, and keep it cloſe; you muſt uſe none of the ſkins or ſeeds, but pick the meat clean out, and when the liquor is blood warm, put it in, with ſix ſpoon fulls of new yeaſt; let it work two days, then put it into a veſſel with a gallon of white wine, and a quart of brandy; putting a lump of ſugar into every bottle.

To make Cowſlip Wine,

Take thirty gallons of water and ſixty pounds of ſugar, boil then together three quarters of an hour, ſkimming it well, then put into a tub and let it ſtand 'till it be cold; then put in eighteen pecks of cowſlips, two dozen

dozen of lemons pared very thin, and put the ſkins into the liquor; then ſqueeze the juice very well out of the lemons, put to it a gill of new yeaſt, and put it into your liquor; let it be beaten three times a day for three days together, then tun into a barrel cowſlips and all; when it hath done working, bung it up cloſe for three weeks, then bottle it; be-ſure to put a good weight of ſugar to it.

To make Gooſeberry Wine.

Take your gooſeberries before they be over ripe, bruiſe them in a wood bowl, but not too ſmall, leſt you bruiſe the ſeeds; then meaſure them, and to every gallon of bruiſed berries, put two gallons of cold water, ſtir them well together, and let them ſtand a night and a day cloſe covered; then ſtrian your liquor from your berries into a tub; if it comes thick, you may ſtrain it through a bag; to every gallon of liquor, put two pounds of loaf ſugar diſſolved, ſtir it well together, then put it into a barrel, and let it work two days; then bung it up for a week and draw it out of the barrel through a bag; put the dregs out of the barrel, and waſh it out with a little of the liquor, and to every gallon of liquor add half a pound more ſugar, ſtir it well together, and put it into the ſame barrel again, bung it up for a month, then it will be fit for bottling.

To make Currantberry-Wine.

Gather your currants full ripe, ſtrip and bruiſe them, and to every gallon of the pulp put two quarts of water, let it ſtand in a tub twenty-four hours, then run it through a ſieve and to every gallon of liquor, put two pounds of fine ſugar, ſtir it till it be well diſſolved, then put it into a clean barrel, let it ſtand two days, then draw it clean off, and put in half a pound more ſugar to every gallon, ſtir it in well to diſſolve it, waſh your barrel, bung it up as cloſe as you can, and let it ſtand ſix weeks, then bottle it; put a little ſugar in every bottle. When you bruiſe the berries, take care that you do not bruiſe the ſeeds.

To make Cherry-Wine.

Pull the ſtalks, bruiſe the cherries, without breaking the ſtones, preſs them hard through a hair bag, and to every gallon of liquor, put two pounds of ſugar; fill your veſſel, and let it work as long as it makes a noiſe, then ſtop it for ſix weeks, and when fine, draw it into dry bottles, putting a lump of ſugar into every bottle; it will be fit to drink in three months.

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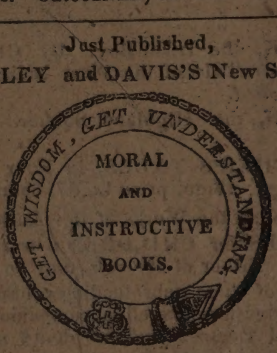

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